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ABSTRACT

This second of the two-part proceedings of an Australian conference on youth schooling and unemployment contains 25 research reports and texts from two symposia on alienation from school to work, and youth in transition. Focus of the papers is on educational practices and specific problems in the area of educational research. Topics covered in individual reports include teacher perceptions about selection, distribution, and use of curriculum materials; conducting research on student evaluations of teaching; using computers in research; combining achievement scores across disciplines to obtain territory entrance scores; economics of unemployment and recurrent education; motivations for entering teaching; student learning preferences and the classroom learning atmosphere; practical and theoretical implications of findings concerning teaching procedures; formation of educational and occupational aspirations in adolescents; analysis of data from attitude measures; factors affecting occupational choice; school leavers in rural areas; work experience; cost effectiveness of secondary cooperative vocational education; post-school education and employment; structural change and youth unemployment; school to work transition among migrant youth; and converting memory protocols to scores on several dimensions. (The first part of these proceedings is available separately through ERIC--see note.) (MN)

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AT THE

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TEACHERS' PERCEPTIONS ABOUT THE SELECTION, DISTRIBUTION AND USE OF SOCIAL STUDIES AND MATHEMATICS CURRICULUM MATERIALS WITHIN A STATE EDUCATION SYSTEM

C.J. Marsh, S. Willis, J.H. Newby, P. Deschamp and B.P. Davis

Introduction

Since 1972 primary school teachers employed by the West Australian Education Dept have operated under a free text-book scheme. The basis for the scheme was the desire to provide children with a wide range of teaching materials without involving their parents in heavy expenses. The Curriculum Branch was to produce the free text-books over a three year period (1972-74) and to establish procedures for their distribution and use. Despite initial difficulties with implementing this massive assignment, and exacerbated in the 1970's by a world paper shortage and various shipping strikes, the scheme was fully operational by 1974.

Under this scheme, school principals are allocated amounts of money by the Education Department on a per capita basis for all major school subjects. Orders are placed with the head office of the Education Department and arrangements are then made for distribution of materials from the Stores Branch. School principals are not compelled to purchase materials produced by the Curriculum Branch and can in fact order a variety of commercially produced materials. However in practice, the relatively inexpensive departmental publications have a considerable cost advantage when compared with commercially produced items.

This study was undertaken to gauge teachers' and principals' reactions to departmental and commercially produced curriculum materials. Data was sought about teachers preferences for materials, the procedures they used to select materials and the chief uses to which they put these materials. Information was also collected on the procedures used to disseminate information about departmental and commercial materials. It was considered that insufficient empirical data was available about such aspects as :-

- What incentives or disincentives are there for classroom teachers to use departmentally produced and commercial materials?
- What procedures are used by the principal and school staff members within individual schools to disseminate information about curriculum materials?
- What priorities do teachers have when searching out and selecting materials?
- What skills are needed by teachers for selecting materials?
- What opportunities do teachers and principals have within their respective schools to discuss the selection and use of materials?

Research studies about these issues are relatively few and tend to consist of those which focus upon general teaching activities within an education system or are subject-specific studies which deal with the adoption or implementation of a specific syllabus or curriculum package. Recent examples of the former include those by Ruddock and Kelly (1976) and Havelock and Huberman (1978). Within Australia, major studies were completed by Horner (1970) and Pusey (1976). Reports and papers about specific state education systems include those by Jones (1974), McGaw (1977), Deschamp and McGaw (1979) and Smart (1979). Examples of subject-specific studies include those by Stake (1977), and Steadman (1978). Recent Australian papers on subject-specific studies include those by Draper (1974) and Hill and Marsh (1979).

This research study attempted to find answers to some of the questions listed above as they related to two core subjects in the primary school curriculum, namely social studies and mathematics. The study represented a co-operative project between several university staff members and members of the curriculum and research branches of a state education department and took place during 1979-80.[1] Attention was focussed only upon the selection, distribution and use of social studies and mathematics curriculum materials by a sample of principals and classroom teachers and not other personnel within the education system.

Research Design

For the purpose of the study, four major issues were examined, namely teachers' knowledge of the curriculum materials available; their use of the materials; their attitudes towards the materials; and factors which were closely related to the selection of materials. Operational questions for each of these four foci were developed and these are indicated in Fig. 1.

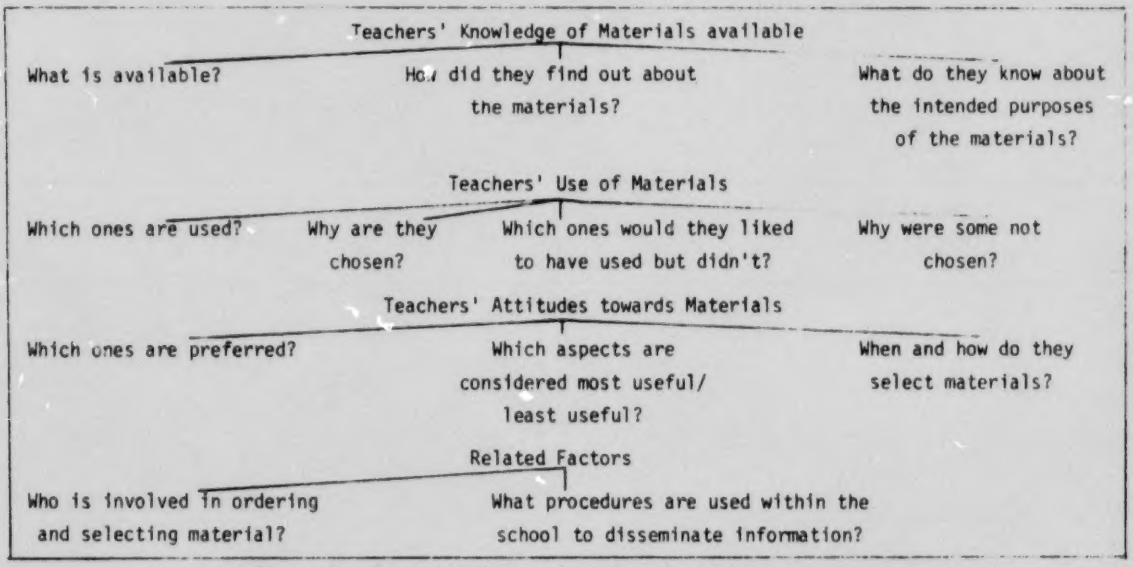
Teachers' Knowledge of Materials available
What is available?
How did they find out about the materials?
What do they know about the intended purposes of the materials?
Teachers' Use of Materials
Which ones are used?
Why are they chosen?
Which ones would they liked to have used but didn't?
Why were some not chosen?
Teachers' Attitudes towards Materials
Which ones are preferred?
Which aspects are considered most useful/ least useful?
When and how do they select materials?
Related Factors
Who is involved in ordering and selecting material?
What procedures are used within the school to disseminate information?

Figure 1: Operational Questions for the Study

To provide adequate answers to these questions required obtaining detailed information about teacher behaviour and a generalizable picture of teacher attitudes and behaviour. This necessitated three separate approaches.

Specific information about how teachers selected and used particular materials and their attitudes about them, was gathered by detailed case studies of two schools. Teachers representing junior, middle and upper levels of the primary grades were contacted at each of the two schools and sessions of observation and informal discussion, extending over a period of up to six weeks, were mutually agreed upon.

Structured interviews were used with teachers and principals from selected schools. They were selected on the basis of representing a wide range of teacher opinions and behaviours, as might be expected from schools drawn from the following categories:

small/large school size

traditional/innovative

high/low socio-economic status

use/non-use of state Education Department curriculum branch materials

high/low use of curriculum support material

The data collected from case study schools and from the structured interviews provided the basic items for the questionnaires. Four versions were produced, so as to accommodate the specific information needed about the two subject areas, and school principals and classroom teachers. A random sample of forty schools was drawn for the two social studies questionnaires and a separate sample of forty schools for the two mathematics questionnaires. All teachers at the selected schools were invited to complete the questionnaires delivered to them. Advisory teachers were used to deliver the questionnaires to schools and to encourage school staff to complete them at their earliest possible opportunity.

The data from the questionnaires was computer processed so that frequency counts could be obtained for each item. Where it seemed likely that an interaction between a variable like "school size", "school location" or "teacher experience" might cause groupings of opinions, cross breaks of the data were produced.

Tables of particular relevance to the findings are included in this paper with comparative frequencies for social studies and mathematics. For tables having five response categories, commentaries are based on the general trend shown by summing the percentages in the two categories "probably the most common way" and "a common way". The figure for social studies and mathematics shown for each table is based upon the summary of these categories. For Table 1 where the range of choices for respondents was limited to three, only the highest category choice is shown. Where percentages are indicated in the text in parenthesis (such as "71%, 53%), the first figure refers to "social studies" and the second refers to "mathematics".

Results

Within any educational system it might be expected that teachers have very different perceptions about curriculum materials used for teaching in various subject areas. Although social studies and mathematics are both "core" subjects taught in all primary schools, it is undeniable that

mathematics receives more teaching time per week, and possibly greater attention is paid to planning, standards of achievement, remediation and extension activities. What is problematical is whether teachers undertake different activities and priorities when finding out about, selecting and using curriculum materials in social studies and mathematics. Considering the research design which provided for different teachers to respond to the social studies and mathematics questionnaires, a comparison of the data obtained revealed an amazing consensus of perceptions on a number of issues relating to knowledge, selection and use of materials for teaching social studies and mathematics. Therefore, when discrepancies did occur on some items, the implications took on greater meaning and significance.

A. Dissemination of Information

Teachers

The major conclusion which can be drawn from data obtained from the teachers' questionnaires is that teachers find out about new materials in similar ways for both social studies and mathematics (Table 1). It is "most likely to be the way" that principals show new social studies and mathematics materials at staff meetings (48%, 52%). Other methods by which teachers find out include looking at materials "left in the staffroom" (27%, 27%) or "housed in a special resource room" (22%, 28%).

One difference between social studies and mathematics teachers was related to whether they asked their respective librarians about new materials. The much higher percentage for the teaching of social studies (22%) compared with mathematics (8%) may indicate the different needs of the two subjects. Perhaps librarians are not so concerned with the non-book materials which are typically associated with mathematics. It may be that new mathematics materials are separately housed (for example, in a Mathematics Resource Centre) from library books in some schools. Furthermore, the nature and use of many manipulative materials is such that for optimal use they need to be kept permanently in classrooms.

Table 1 Teachers' Questionnaire

Item 25. How do you find out that new Social Studies/Mathematics materials have come into the school? Select your answers from the following:

Most likely to be the way 1
It is sometimes like that 2
It is seldom, if ever, like that 3

		% Soc. Stds.	% Maths
a)	They are shown at staff meetings	48	52
b)	They are given personally by Principal to some teachers to trial	11	10
c)	They are put directly into library shelves	13	7
d)	They are put on display in the library	19	10
e)	They are left in the staffroom	27	27
f)	The details are put on the noticeboards	11	9
g)	They are circulated to classrooms	16	14
h)	The details are circulated in a file	7	7
i)	They are housed in special resource room	22	28
j)	I ask the librarian	22	8
k)	I am invited by the teacher-librarian to try new materials	8	3
l)	I am told about them by advisory staff	4	4
m)	I read about them in "Axis" (a social studies newsletter)	12	n/a

Principals

Principals generally did not consider that librarians had a role to play in the selection of, and dissemination of information about mathematics materials. With regard to specific questionnaire items dealing with how principals found out about newly available materials, it was evident that similar methods were used for finding out about social studies and mathematics materials. The "most common" or "common ways" principals learnt about new commercial materials were by "pamphlets in the post" (52%, 53%), "commercial salesmen" (43%, 35%), "catalogues" (31%, 41%) and "advisory teachers" (29%, 36%).

The dissemination of information about commercial materials by principals to their respective staff suggest some interesting similarities and differences between social studies and mathematics. Principals responding to the social studies questionnaire indicated that they more commonly informed staff about commercial materials by discussing "important ones with staff" (74%, 59%) and by "putting notices on the noticeboard" (36%, 12%) than did the mathematics respondents. The librarian was used to inform staff about social studies materials (19%) but no respondent recorded this method as a "most common way" or "a common way" for mathematics materials.

Another item in the questionnaire referred to methods used to inform staff about new materials available from the Education Department. From the data it appears that principals made little distinction between the two subjects of social studies and mathematics. Respective percentages for such methods as "reading a notice to staff", (45%, 41%) and "informal personal contacts" (63%, 56%) were comparable for both subjects. However presentation "at morning tea" (54%, 33%) and "discussing them at staff meetings" (44%, 29%) revealed lower percentages for the mathematics respondents.

Some overall figures about the dissemination methods considered by principals to be most effective are listed in Table 2. The degree of concurrence between social studies and mathematics respondents is quite remarkable for such methods as "key staff inform others" (46%, 44%), "displays" (43%, 43%), "staff meetings" (67%, 64%) and "workshops on available materials" (46%, 44%). Yet the approach of "using the librarian to inform staff" (31%, 9%) was clearly preferred for social studies materials. Teachers generally agreed with the principals' views on the effectiveness of the various dissemination methods and there was considerable agreement in responses to the social studies and mathematics questionnaires. Thus, highly regarded were: "to discuss in detail at staff meetings" (34%, 34%), "a central display room" (38%, 41%) and "one staff member to have responsibility for explaining to staff" (26%, 25%). Again, it was evident that social studies respondents were more favourably disposed toward "a display area in library" (26%, 5%) and "a time set aside for librarians to show and explain new materials" (29%, 15%).

Table 2 Principals' Questionnaire

Item 17. What method of informing staff about new materials do you consider to be most effective? Select your answers from:

Probably the most effective way 1
An effective way 2
Sometimes a useful way 3
Seldom, if ever, a useful way 4

		% Soc. Stds.	% Maths
a)	Personal contacts	89	79
b)	Displays	43	43
c)	Staff meetings	67	64
d)	Circulate a message book/materials	10	24
e)	By using the librarian to inform staff	31	9
f)	Asking a teacher to trial some materials	48	35
g)	Key staff inform others	46	44
h)	Workshops on available materials	46	44
i)	A small committee notifies other staff	19	15
j)	Through Teachers' Guides	12	12

B. Selection of Materials

Teachers

Similar procedures appear to have been taken by teachers for selecting social studies and mathematics materials. Teachers indicated that "the most likely way" was by "mutual sharing with other teachers" (44%, 41%) and on "a first in basis" (35%, 37%). Although both teachers and principals indicated that mutual sharing was the most common practice, a further questionnaire item gave additional insights into selection practices, by its focus upon the problems encountered in selecting appropriate curriculum materials. Teachers revealed that important problems included "enough time to select materials" (53%, 46%), "knowing what is available" (44%, 36%), "other classes already have material you want" (35%, 43%) and "materials you want are not available in your school" (42%, 46%). The "mutual sharing opportunities" mentioned above may be limited in practice because of the time constraints. The sharing of materials might be far from satisfactory if teachers don't know which materials are available or if they want materials which other teachers are using or if they want materials that are not available at their school. Other problems are listed in Table 3. The only item which revealed a major difference between social studies and mathematics respondents was over the need "to order materials (for example, filmstrips) well in advance" (53%, 30%).

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prepared textbook".

Table 4 Principals' Questionnaire

Item 8. Which of the following best describes the changes which have taken place in the teaching of social studies/mathematics at yourschool over the last year or so? Select your answers from:

Probably the most significant change 1
An important change 2
Minor changes have occurred here 3
Little or no change has occurred here 4
We have been doing this for some time 5

		% Soc. Stds.	% Maths
a)	We have moved towards independent research by students	24	n/a
b)	We are using a wider variety of rseource materials	41	50
c)	We are going on a lot more excursions	21	
d)	We have reintroduced a commercially produced textbook	5	32
e)	We use more audio-visual material	24	n/a
f)	We have developed a school-based policy and/or syllabus	31	n/a
g)	We make greater use of the Education Department's topic books	2	13
h)	We place greater emphasis on skills	26	30
i)	A stronger emphasis on activity based learning	19	51
j)	Use more concrete materials	n/a	68
k)	We place greater emphasis on problem solving	n/a	19

(n/a - not asked/not applicable to the subject)

Discussion

It is clear from the study that principals play a major role in disseminating information about materials to teachers and that they tend to rely upon a common set of techniques for informing teachers about social studies and mathematics materials. Significant problems which were revealed in this study (and which were also evident in the recent Schools Council Impact and Take-up Project report (Steadman 1978)) were that teachers did not know what materials were available and that they did not have enough time to make appropriate selections. Perhaps school principals need to take a more active role in disseminating materials by using personal contacts with individual staff members that require in-depth discussions and follow-up activities. Opportunities need to exist in staff meetings for teachers to examine, analyze and evaluate new materials. For social studies materials, it seems that teacher-librarians have the potential to be highly effective disseminators, especially if principals reinforce their activities and emphasize the need for teachers in their respective schools to make full use of library resource materials. Advisory teachers and other personnel external to the school have expertise in and knowledge about subject areas which can be profitably shared with school staffs.

The selection of materials appears to follow similar patterns for social studies and mathematics teachers. The practicalities of the day-to-day activities of teaching seem to necessitate teachers making rapid decisions about materials they intend to use with their respective classes. Making early decisions about materials may be borne out of a sense of urgency to get the widest choice from class sets available with little earnest thought and time given to a careful evaluation of the materials selected. Lack of time is undoubtedly a problem for teachers who have serious intentions about

thoroughly examining new curriculum materials prior to selection and use. What may also be a factor, although the data from the study provided little clear evidence about it, is the classroom teachers' relative lack of expertise and training in procedures and criteria which can be used to systematically analyze and evaluate curriculum materials.

Staff involvement in the selection and ordering of materials appeared to be less than desirable for both social studies and mathematics, although it was most marked in the former. There appears to be the need for increased efforts by principals to involve their staff in selection and ordering activities. By so doing, it could achieve a greater teacher awareness of materials available in their school and the opportunity for all to assist with the selection of materials that have maximum relevance for the total school population.

In both social studies and mathematics, teachers seemed to be using a wide variety of teaching materials with a definite trend toward activity-based and student-initiated learning activities.

Teachers' use of guidelines and teachers' handbooks as a framework for selecting appropriate materials was evident to a certain extent in teachers' responses, but most highly marked in mathematics. This may have been indicative of present syllabus documents and teachers' handbooks available for the respective subjects, which at the time of this study, were highly developed and available for mathematics but not for social studies. Yet it might also indicate a lack of serious consideration of them by teachers, whether they were guidelines derived from a central education office or those designed by an individual school or region.

Use of materials appears to be related to the personnel in a school (if any) who are given special responsibilities for a subject area. "Regulation" teachers and teacher librarians were frequently cited as resource persons who were able to help teachers select and use social studies curriculum materials. For mathematics, principals seemed to be very eager to be personally involved in the selection of materials and the overviewing of the total school curriculum in that subject. Where there are persons willing to take on these responsibilities, it seems that the teaching is encouraged and nurtured, and that high levels of student achievement and teacher satisfaction can occur.

The study pointed up a number of issues related to the knowledge of materials, dissemination, selection and use. Most surprising was the high degree of consensus of perceptions by social studies and mathematics respondents, even though they represent two separate samples. To fully understand the implications of the issues raised, will require follow-up analysis of further groups of teachers & principals. Case study methodology may indeed be the most fruitful to understand more completely some of the queries raised by this study. Finally, it should be noted that perceptions by teachers and principals must be examined in the wider context of the total education system and due regard given to the inputs and relative influence of other educational colleagues working within the system.

[1]The project was conducted jointly be staff members from the School of Education, Murdoch University and the Education Department of Western Australia. Data included in this paper is derived from the final report of the project: C.Marsh, S. Willis, J.H. Newby, P. Deschamp, B.P. Davis. Selection, Distribution and Use of Social Studies and Mathematics Curriculum Materials in Government Primary Schools of Western Australia. Cooperative Research Series Report No. 5., Education Department of Western Australia, 19 .

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An Application of LISREL Modeling to Multitrait-Multimethod Analysis

Herbert W. Marsh, University of Sydney [1]

Dennis Hocevar, University of Southern California

Campbell and Fiske (1959) advocate the assessment of validity by obtaining measures of more than one trait, each of which is assessed by more than one method. In the present example the different traits are nine dimensions of evaluations of instructional effectiveness; the different methods of assessing the traits are student ratings of teaching effectiveness and instructor self evaluations of their own teaching effectiveness. Convergent validity, that which is most typically determined, is the agreement between measures of the same trait assessed by two different methods -- student-faculty agreement on evaluations of teaching. Discriminant validity refers to the distinctiveness of each of the trait-factors.

Determination of convergent and discriminant validity is based upon inspection or analysis of a multitrait-multimethod matrix such as the one shown in Table I (considering only the coefficients below the main diagonal at this point). Correlations between different traits assessed by the same method appear in monomethod - heterotrait (the upper left and lower right) blocks of the matrix. The convergent validity coefficients, correlations between the same traits assessed by different methods appear in the heteromethod - monotrait diagonal of this matrix -- the values in ⟨ ⟩ Table I. It is also valuable to have the reliabilities of each measure in the monotrait - monomethod diagonals of the heterotrait - monomethod matrices -- the values in parentheses in Table I. Campbell and Fiske (1959) proposed four criteria for assessing convergent and divergent validity:

1) The convergent validity coefficients should be statistically significant and sufficiently different from zero to warrant further examination of validity. Failure of this test indicates that the different methods are measuring different constructs and implies a lack of validity in at least one of the methods.

2) The convergent validities should be higher than the correlations between different traits assessed by different methods. The failure of this test implies that agreement on a particular trait is not independent of agreement on other traits, perhaps suggesting that the agreement can be explained in terms of a generalized agreement that encompasses more than one (or all) of the traits.

3) The convergent validities should be higher than correlations between different traits assessed by the same method. If the convergent validities are not substantially higher, there is a suggestion that the traits may be correlated, that there is a method effect, or some combination of both these possibilities. If the correlations between different traits assessed by the same method approach the reliabilities of the traits, then there is evidence of a strong halo or method bias.

4) The pattern of correlations between different traits should be similar for each of the different methods. Satisfaction of this criterion -- assuming that there are significant correlations among traits -- would suggest that the underlying traits are truly correlated. Failure to meet this criterion implies that the observed correlation between traits assessed by a given method is due to a method or halo bias.

Despite the intuitive appeal of the Campbell-Fiske criteria, there are numerous potential problems in their application. Although many of these were anticipated by Campbell and Fiske, solutions were not offered. Perhaps recognizing the dangers in the precise formulation of their criteria, these authors stated that the development of statistical treatments might be unnecessary or inappropriate.

An obvious problem with the Campbell-Fiske criteria is the lack of specification as to what constitutes satisfactory results. The application to be presented in this paper, for example, involves nine traits, each assessed by two methods. Testing the second and third criteria alone requires that each of the nine convergent validities be compared with 32 different correlations -- a total of 288 comparisons. Besides being unwieldy, the likelihood of obtaining rejections due to sampling fluctuations alone increases geometrically with the number of traits and methods. The user is left with the task of determining either the proportion of failures or some average difference

[1] The authors wish to acknowledge William McGarvey and Robert Cudeck for their comments on an earlier draft of this paper, and for their assistance in the application of the LISREL approach. Requests for reprints should be sent to Herbert W. Marsh, Department of Education, University of Sydney, Sydney, NSW 2006, Australia.

between the convergent validities and coefficients against which they are to be compared. In either case, the decision as to what constitutes a failure is arbitrary.

An even more serious ambiguity exists in the criteria used to assess discriminant validity. At least conceptually, Campbell and Fiske make clear distinctions between method variance, trait variance, and trait covariation. Method variance -- the introduction of systematic variation due to a specific method of data collection -- is clearly detrimental to discriminant validity, though it does not preclude the demonstration of either divergent or convergent validity. True trait variance (i.e., convergent validity) -- the correlation between different methods of assessing the same trait that is independent of method variance -- is obviously good, but it does not imply discriminant validity. True trait covariation -- the true correlation between different traits that does not depend upon the method of data collection -- will increase the likelihood of failures in the application of the second and third criteria. However, the fourth criterion specifically tests for true trait covariation, and its demonstration is taken as support for discriminant validity. A complete lack of trait covariation makes interpretation more simple, but is unlikely to exist in any but the most contrived of situations (e.g., attitudes toward cigarette smoking and capital punishment). Trait correlations approaching unity can be unambiguously interpreted as a complete lack of discriminant validity. For most applications, however, some low to moderate true trait covariation is likely, and its interpretation is left ambiguous.

The most serious problem with the Campbell-Fiske criteria is that they are based upon inspection of correlations between observed variables, but make inferences about underlying trait and method factors. The validity of any set of interpretations depends upon the behaviour of the underlying constructs. This can be illustrated with the problem of systematically differing reliabilities. Application of the criteria implicitly assumes, as recognized by Campbell and Fiske, that each of the measures are equally reliable. If there are substantial differences in the reliabilities of different traits, or in the measures obtained with different methods, then failures of one or more of the criteria may be a function of the differential reliabilities alone. For example, if traits assessed by one method are systematically more reliable than those assessed by a second method, then the correlations among traits assessed with the more reliable method will be higher, and give the appearance of a method effect. Some authors have suggested that the multitrait-multimethod matrix be corrected for attenuation (Heberlein, 1969; Althauser & Heberlein, 1970).

Similarly, the Campbell-Fiske criteria also assume that convergent validities reflect the effect of shared trait variance. While this is true, the convergent validity coefficients can also be affected by shared method variance or a trait-method interaction. Furthermore, the existence of shared method variance or trait-method interactions may act to either artificially inflate or deflate the observed validity coefficient. A more detailed discussion of the implications of these underlying inferences is presented by Alwin (1974).

Since the development of the Campbell-Fiske criteria for assessing the multitrait-multimethod matrix, a variety of specific statistical tests have been developed (Althauser & Heberlein, 1970; Alwin, 1974; Joreskog, 1974; Kavanagh, MacKinney & Wolins, 1971; Kenny, 1979; Lomax & Algina, 1974; Schmitt, 1978; Schmitt, Coyle & Saari, 1977; Werts & Linn, 1970). In the present study two of these procedures are applied, and their limitations are illustrated. The first is an analysis of variance technique that was presented by Kavanagh, et al. (1971), while the second is a variety of LISREL models as elaborated by Schmitt (1978).

In the present study, the multitrait-multimethod approach was used to validate students' evaluations of teaching effectiveness. Instructors in 329 college classrooms were asked to evaluate their own teaching effectiveness on the same nine-trait instrument as their students. Previous application (Marsh & Overall, 1979; Marsh, Overall & Kesler, 1979) of the Campbell-Fiske criteria left several questions unanswered. In spite of evidence for both convergent and divergent validity, there was the suggestion of a moderate method variance -- particularly with the student ratings. However, confounding this suggestion were the fact that the student ratings were more reliable than the instructor ratings (perhaps explaining the higher correlations among the student ratings), and the likelihood that the correlations among the traits (instructional evaluation factors) were true correlations rather than method or halo bias. The purpose of this study is to compare the conclusions based upon Campbell-Fiske criteria with those obtained from two alternative analytic procedures, and to discuss advantages and disadvantages of the approaches.

Method

During the academic year 1977-78 student evaluations were collected in virtually all courses offered in the Division of Social Sciences at the University of Southern California. Evaluations were administered shortly before the end of the term, generally by a designated student in the class or by a staff person. The surveys were completed by an average of 76% (a range of from 54% to 100%) of the students enrolled in each class.

Instructor self evaluation surveys were sent to all teachers who had been evaluated by students in at least two different courses during the same term. Instructors were asked to evaluate the effectiveness of their own teaching in both courses. These surveys were completed after the end of the term, but before summaries of the student evaluations were returned. While participation was voluntary, a cover letter from the Dean of the Division strongly encouraged cooperation and guaranteed the anonymity of each teacher's response. Instructors evaluated both courses with a set of items identical to those used by students, except that items were worded in the first person. They were specifically instructed to rate their own teaching effectiveness and not to report how students would rate them. A total of 181 instructors (78%) returned self evaluations from 331 courses; ratings of 183 undergraduate courses taught by faculty, 45 graduate level courses, and 103 courses taught by teaching assistants.

The evaluation instrument consisted of 35 items that were designed to measure 9 traits. Previous research, based upon a different sample of 511 undergraduate classes taught by regular faculty, determined the reliability of the evaluation factors (median alpha = .94), confirmed the existence of the nine evaluation dimensions, and provided weights that were used in calculating factor scores (See Marsh & Overall, 1979). The evaluation factor scores used in the present study were weighted averages, the weights having been derived from the previous factor analysis, of standardized responses to each item. The evaluation trait-factors and a brief description are as follows:

LEARNING/VALUE--The extent to which students felt they encountered a valuable learning experience that was intellectually challenging.

INSTRUCTOR ENTHUSIASM--The extent to which students perceived the instructor to display enthusiasm, energy, humor and an ability to hold their interest.

ORGANIZATION--The instructor's organization of the course, course materials, and class presentations.

GROUP INTERACTION--Students' perceptions of the degree to which the instructor encouraged class discussions and invited students to share their own ideas or to be critical of those presented by the instructor.

INDIVIDUAL RAPPORT--The extent to which students perceived the instructor to be friendly, interested in students, and accessible in or out of class.

BREADTH OF COVERAGE--The extent to which students perceived the instructor to present alternative approaches to the subject and to emphasize analytic ability and conceptual understanding.

EXAMINATIONS--Students' perceptions of the value and fairness of graded materials in the course.

ASSIGNMENTS--The value of class assignments (readings, homework, etc.) in adding appreciation and understanding of the subject.

WORKLOAD/DIFFICULTY--Students' perceptions of the relative difficulty, workload, pace of presentations, and the number of hours required by the course.

Separate factor analyses were performed on the student and instructor self evaluations for the 329 classes included in this study (Marsh & Overall, 1979). This analysis was performed to determine if similar evaluation trait-factors underlie both the student and instructor self evaluations, and if these were similar to results previously obtained for a different sample of student ratings. Factor analyses of both student and instructor ratings confirmed the existence of the same nine trait-factors that had previously identified. Each item, for both student and instructor evaluations, loaded highest on the factor it was designed to measure. Loadings for items defining each factor generally exceeded .50, and all other loadings were typically less than .20. Furthermore, the factor loadings from both these analyses were quite similar to those previously obtained with a different population of student evaluations. The 315 factor loadings (35 items loading on each of 9 factors) for the factor analysis of instructor ratings considered in this study correlated .90 with both the 315 factory loadings obtained for student evaluations in this study and those obtained with a previous factor analysis of a different sample of student evaluations; the two sets of 315 loadings from the two factor analyses of the student ratings correlated .95 with each other. These findings justify the assumption that similar evaluation trait-factors underlie both the student and instructor evaluations.

Results

Campbell-Fiske Criteria.

Application of the Campbell-Fiske criteria discussed earlier requires a visual inspection of the multitrait-multimethod matrix presented in Table I. One of the limitations of the use of these criteria, as indicated by Campbell & Fiske (1959), is the implicit assumption that the trait reliabilities obtained with different methods are comparable. This is clearly not the case in the present example, since student evaluations (based upon class average responses) are consistently more reliable. Coefficient alphas (see Table I) for student ratings vary from .87 to .98 (median = .94), while those for the instructor self evaluations vary from .70 to .90 (median = .82). Consequently, for each of the correlations presented in Table I, the same correlation corrected for attenuation is also presented. Interpretation of the Campbell-Fiske criteria is discussed in terms of both corrected and uncorrected correlations.

The first Campbell-Fiske criterion requires that convergent validity coefficients be statistically significant and high enough to warrant further consideration of validity. Each of the convergent validity coefficients presented in Table I is statistically significant, and they are substantial (median r = .45, corrected for attenuation).

TABLE I

Multitrait-Multimethod Matrix: Correlations Between Student and Faculty Self Evaluations in 329 Courses

	INSTRUCTOR SELF-EVALUATION FACTORS									STUDENT EVALUATION FACTORS								
INSTRUCTOR SELF EVALUATION FACTORS	LEARN	ENTHU	ORGAN	GROUP	INDIV	BRDTH	EXAMS	ASIGN	WRKLD	LEARN	ENTHU	ORGAN	GROUP	INDIV	BRDTH	EXAMS	ASIGN	WRKLD
LEARNING/VALUE	(810)	286	117	10	-70	127	-8	243	30	<905>	214	171	192	29	256	183	207	-58
ENTHUSIASM	347	(820)	10	30	-19	124	80	-8	-10	99	<876>	132	46	31	149	89	26	-29
ORGANIZATION	149	13	(740)	-147	72	129	262	167	116	-12	-41	<254>	-203	-53	81	17	18	40
GROUP INTERACT	17	35	-180	(900)	20	107	85	46	-92	82	-13	-34	<854>	131	-3	-7	86	1
INDIVID RAPPRT	-85	-23	93	24	(820)	-14	147	218	59	-121	-16	36	-4	<250>	-142	55	-6	32
BREADTH	152	149	163	123	-17	(840)	201	85	-41	93	-7	67	-24	-188	<367>	-88	44	-31
EXAMINATIONS	-9	101	349	102	186	254	(760)	218	91	25	432	86	-137	-36	2	<135>	-16	123
ASSIGNMENTS	319	-11	232	58	288	111	299	(700)	218	77	-90	-3	-47	-24	95	-19	<356>	225
WRKLD/DIFFCLTY	39	-13	161	-116	78	-53	125	306	(700)	16	-98	-48	-81	3	21	-56	122	<539>

	INSTRUCTOR SELF-EVALUATION FACTORS									STUDENT EVALUATION FACTORS								
STUDENT EVALUATION FACTORS	LEARN	ENTHU	ORGAN	GROUP	INDIV	BRDTH	EXAMS	ASIGN	WRKLD	LEARN	ENTHU	ORGAN	GROUP	INDIV	BRDTH	EXAMS	ASIGN	WRKLD
LEARNING/VALUE	<856>	112	-15	89	-137	104	-41	94	20	(950)	855	528	369	222	494	481	521	58
ENTHUSIASM	240	<537>	-48	-14	-19	-8	-32	-109	-120	476	(960)	497	305	350	339	419	246	17
ORGANIZATION	195	151	<306>	-37	41	76	102	-4	-59	562	526	(930)	215	334	562	571	345	-46
GROUP INTERACT	213	52	-239	<884>	-4	-27	-159	-57	-98	382	314	225	(980)	420	165	341	305	-54
INDIVID RAPPRT	33	34	-63	141	<282>	-209	-42	-30	3	233	364	353	433	(960)	156	504	288	80
BREADTH	290	169	104	-4	-162	<813>	2	117	26	522	357	401	172	164	(940)	334	403	178
EXAMINATIONS	208	102	28	-7	63	-106	<166>	-23	-69	512	483	615	357	534	357	(930)	423	-23
ASSIGNMENTS	237	50	21	94	-7	50	-19	<843>	151	557	226	373	321	307	433	457	(920)	204
WRKLD/DIFFCLTY	-68	-35	50	1	37	-36	151	289	<691>	68	18	-51	-59	87	196	-26	228	(870)

NOTE: Values enclosed in ( ) in the diagonals of the upper left and lower right matrices (the heterotrait-monomethod matricies), are reliability (coefficient alpha) coefficients. Values enclosed in < > in the diagonals of lower left and upper right matricies (the heterotrait-monomethod matricies) are the convergent validity coefficients. All coefficients above the main diagonal of the entire 18 x 18 matrix have been corrected for unreliability. Correlations (presented without decimal points) greater than 100 (i.e., .10) are statistically significant.

The second Campbell-Fiske criterion requires that each convergent validity coefficient be higher than any other correlation in the same row or column of the same heterotrait-heteromethod block. This test requires that each of the nine convergent validity coefficients be compared to each of 16 other coefficients -- a total of 144 comparisons in all. Data presented in Table I satisfy this criterion for 143 of the 144 comparisons (for both corrected and uncorrected correlations), providing good support for this aspect of discriminant validity.

The third criterion requires that each convergent validity be higher than correlations between that trait and any other trait assessed by the same method. Application of this criterion to the uncorrected data indicates only 4 rejections (out of 72 comparisons) for the instructor self evaluations. For the student evaluations, however, there are 30 rejections (also out of 72 comparisons). On the surface, this would seem to suggest a method of halo effect for the student ratings, though little for the instructor self evaluations. However, this interpretation is biased by the fact that the student ratings are consistently more reliable than the instructor ratings. Correlations involving only student ratings are least attenuated, while those involving only instructor ratings are most attenuated. Consequently, relative to the convergent validities, correlations between student ratings are systematically inflated and correlations among instructor ratings are systematically deflated. When all correlations are corrected for attenuation, however, this criterion is still not met in 27 comparisons involving the student evaluations and only 5 with the instructor self evaluations. The correction for attenuation decreased the apparent method effect and lessened the difference in method effect between student and instructor ratings, but these changes were small.

The fourth criterion requires that pattern of correlations among different traits should be similar for the different methods. A visual inspection of Table I suggests that this may be the case. To provide a more precise test, the 36 off-diagonal coefficients in the student rating block were correlated with those in the instructor rating block. The result, r = .43, was significant at the

.01 level and suggests that there is a similarity in the pattern of correlations. This suggests that there is true trait covariation that is independent of method.

In summary, the data provide clear support for convergent validity, and at least two of the criteria of discriminant validity. Student - instructor agreement on any one trait was independent of their agreement on other traits. Furthermore, there was a similarity in the pattern of trait correlations for student and instructor ratings. There was an indication, however, of some halo or method effect -- particularly with the student ratings.

The ANOVA Approach.

Based upon recent citations in the literature, this technique appears to have been popularized by Kavanagh, MacKinney, and Wolins (1971). Stanley (1961) demonstrated how multitrait - multimethod data could be analyzed with a three-factor unreplicated analysis of variance; wher repeated measurements of cases -- ratings of college classes in the present application -- are measured over all levels of two other variables--traits and methods in this application--three orthogonal sources of covariation can be estimated. The main effect due to classes is a test of how well ratings in general discriminate between classes, and is suggested to be analogous to convergent validity. It should be noted that this is NOT the same use of convergent validity as that discussed by Campbell and Fiske (1959). The interaction between classes and traits tests whether the differentiation between classes depends upon traits. If it does not, then the traits have no differential validity (i.e., each class is ranked the same regardless of the trait). This is taken to be measure of discriminant validity. The interaction between classes and methods tests whether the differentiation between classes depends upon methods. If it does, then the different methods introduce a source of systematic (undesirable) variance. This is taken to be a measure of method or halo effect. The class by trait by method interaction is assumed to measure only random error (i.e., the differentiation between classes is assumed not to depend upon any specific trait - method combination). Stanley (1961) recommends that the measures be replicated for each subject within a given study, thus providing independent estimates of the three way interaction and the error term. However, his recommendation does not seem ever to have been followed. In this model main effects due to traits and methods can also be calculated, but these are generally of less interest.

Boruch, Larkin, Wolins and MacKinney (1970) and Kavanagh, MacKinney and Wolins (1971) have described computational procedures whereby the mean squares and the variance component estimates for the analysis of variance model could be computed directly from the correlations contained in the multitrait - multimethod matrix. The computational equations for computing these effects are presented in Table II. The systematic differences in the reliabilities of student and instructor ratings, as previously discussed, will produce biased estimates of the discriminant validity and method/halo effects (Boruch, Larkin, Wolins & MacKinney, 1970; Schmitt, et al., 1977). Consequently, the ANOVA procedure was also applied to the correlations that were corrected for unreliability (see Table I).

Each of the ANOVA effects -- Convergent Validity, Divergent Validity, and Method/Halo bias -- and their variance components are presented in Table II. All three effects are statistically significant for analyses based upon both the corrected and uncorrected correlation coefficients. The size of the discriminant validity effect (the variance component) was approximately twice that of the method/halo effect. When the correlation coefficients were corrected for attenuation, each of the effects -- except the error term -- increased. However, the largest increase occurred for the discriminant validity effect. As was observed with the Campbell-Fiske analysis, the correction for attenuation improved the discriminant validity, but did not eliminate the method/halo bias.

TABLE II

Computational Equations and Results of the ANOVA
Analysis of a Multitrait - Multimethod Matrix

Computations For Sums of Squares and Estimated Variance Components

SOURCE	S S	DF	Variance Component
Class (C) (Convergent Validity)	Nnm (rt)	N-1	(MSc-MScta)/nm
Class x Traits (Discriminant Validity)	Nnm (rv - rt)	(N-1) (n-1)	(MSct-MScta)/m
Class X Methods (Method/Halo Effect)	Nnm (rf - rt)	(N-1) (m-1)	(MScm-MScta)/n
C x T x M (error)	Nnm(1-rv-rf+rt)	(N-1) (n-1) (m-1)	MScta

NOTE: N = Total Number of Cases (classes)
n = Number of different traits
m = Number of different methods
rt = average correlation coefficient in the entire MTMM matrix (including coefficients both above and below the diagonal and values of 1.0 in the diagonals
rv = average correlation between sources within traits, computed by:
(2 (sum of validity diagonals) + mn) / n m**2
rf = average between trait correlation in the monomethod blocks, computed by:
(2 (sum of monomethod-heterotrait triangle coefficients) + nm) / m n**2
F-Ratios for each of the three effects (convergent validity, divergent validity and method/halo effect) are obtained by dividing the Mean Squares for the effect -- the Sum of Squares divided by the degrees of freedom -- by the Mean Square of the Error term.

Results for Uncorrected and Corrected Correlation Matricies

		UNCORRECTED CORRELATIONS				CORRELATIONS CORRECTED FOR ATTENUATION			
SOURCE	df	SS	MS	F	VARCP	SS	MS	F	VARCP
Class (Convergent)	328	1009.55	3.078	6.54**	0.145	1085.89	3.311	8.17**	0.162
C x Trait (Divergent)	2624	3016.25	1.149	2.44**	0.340	3101.05	1.182	2.97**	0.392
C x Method (Method/Halo)	328	661.77	2.011	4.27**	0.171	690.54	2.099	5.27**	0.189
C x T x M (Error)	2624	1234.43	0.470	----	0.470	1044.51	0.398	----	0.398
NOTE: Rt=0.170; Rv=0.680; Rf=0.282 N=329 classes; n=9 traits; m=2 methods						NOTE: Rt=0.183; Rv=0.707; Rf=0.300 N=329 Classes; n=9 traits; m=2 methods			

The principal advantages of the ANOVA model are its ease of application and the convenient descriptive statistics summarizing the relative magnitude of the effects of convergent validity, divergent validity, and method/halo bias. However, the model also has major shortcomings. The problem of differing reliabilities, which this approach shares with the Campbell-Fiske analysis, has already been discussed. The assumption that the class by method by trait interaction contains only error variance is not normally testable, and its violation may have varying influences on the estimation of the other effects. The model makes no provision for the possibility of true trait covariation or correlated method effects, and provides no test for their existence. Finally, many of the heuristic inferences that are likely to result from the application of the Campbell-Fiske criteria will be lost with application of only the ANOVA analysis. Many of the disadvantages of the ANOVA model are shared with the Campbell-Fiske analysis, but the misleading precision and simplicity of the ANOVA approach are less likely to reveal these potential problems.

There is no clear equivalence between the effects estimated by the ANOVA model and the Campbell-Fiske criteria. Inspection of the computational equation for the convergent validity effect (see Table II), indicates that it is a function of the average correlation in the entire multitrait - multimethod matrix. This is clearly different from the Campbell-Fiske criterion that is based upon just the convergent validity diagonal. In particular, even if all the convergent validity coefficients approached unity, the average correlation in the entire matrix generally would not. Similarly, the ANOVA model might indicate a moderate degree of convergent validity even if the average convergent validity coefficient were close to zero.

The similarity of the divergent and method/halo effects in the ANOVA model to the Campbell-Fiske criteria is harder to assess, due in part to ambiguities in the criteria. However, inspection of the computational equations for the ANOVA effects (Table II) indicates that the discriminant validity and method/halo effects are a function of the difference between the average of specified correlations and the average correlation in the entire multitrait - multimethod matrix. In application of the Campbell-Fiske criteria, the comparisons are more specific. Consequently, when the correlations were corrected

for attenuation, the Campbell-Fiske analysis indicated that the method effect was reduced (i.e., fewer rejections of criterion 3), but the method effect in the ANOVA model actually increased -- though the increase was less than the increase in the discriminant validity effect. The ANOVA model has no term that is comparable to fourth Campbell-Fiske criterin. These observations indicate that comparisons between the results based upon the ANOVA model and those from the Campbell-Fiske analysis should be made cautiously.

In summary, application of the ANOVA results indicates significant effects of convergent validity, discriminant validity, and method/halo effect. The size of the discriminant validity effect (the variance component) was more than twice as large as either of the other two effects. The variance component for this effect was also increased the most by the correction for attenuation.

LISREL Modeling

The LISREL modeling approach is described under a variety of different labels in the literature: restricted factor analysis (Boruch & Wolins, 1970), confirmatory factor analysis (Werts, Joreskog & Linn, 1972), path analysis (Schmidt, Coyle & Saari, 1977; Schmidt, 1978), and exploratory factor analysis (Lomas & Algina, 1979). Each of these sources offers a description of the technique and demonstrates its application. The actual analysis is generally performed with one of the LISREL computer programs developed by Joreskog (1969; 1970; Joreskog & Sorbom, 1978). For this study the notation, the specification of the model, and the actual analysis were performed with the LISREL IV version (Joreskog & Sorbom, 1978) of the program. The model requires the specification of three different matrices.[2] These are the LAMBDA matrix that contains the factor loadings, the PSI matrix that contains the correlations between the factors, and the THETA matrix that contains the error/uniqueness of each measured variable. These are conceptually similar to the rotated factor matrix, the matrix of correlations between factors, and the communalities (actually one minus the communalities) that result from common factor analysis. In the LISREL model, however, the researcher is able to constrain various parameters in the different matrices in order to test alternative models. On the basis of these three matrices, a reporduced correlation matrix is determined that provides a "best fit" to the original correlation matrix within the constraints that are imposed by the proposed model. Using matrix notation SIGMA, the reproduced correlation matrix is defined as:

SIGMA = LAMBDA * PSI * LAMBDA + THETA EPSILON

In the present example, the configuration for the factor loading (LAMBDA) matrix and the matrix of correlations between factors (the PSI matrix) is presented in Table III.

In the LAMBDA matrix, each of the 11 factors (Eta 1 - Eta 11) represents either a method factor (Eta 1 & Eta 2), or a trait factor (Eta 3 - Eta 11). The first method factor is defined by the nine instructor self evaluations (Ilrn, Ient,...,Iwrk), while the second method factor is defined by the nine student ratings (Slrn, Sent,...,Swrk). Each of the nine trait factors is defined by the one instructor and one student rating of the same trait. For example, the first trait factor (Eta 3) is the Learning trait factor and is defined by the instructor and student ratings of Learning. Each of the "0" elements in the matrix represents a constrained (fixed) parameter, while the other 36 elements are free and will be estimated.

In most of the models to be discussed -- with some notable exceptions, the factors are oblique (correlated). The correlations among the 11 factors appear in the PSI matrix (see Table III). Each of the elements in the PSI matrix represents a correlation between two factors: for example, r10.11 represents the correlation between the Assignment factor (Eta 10) and the Workload/Difficulty factor (Eta 11). Elements of the matrix that begin with r were free and estimated by the program; the "0" elements were fixed to be zero; and the diagonals were fixed to be 1.0.

The LISREL program attempts to minimize a maximum-likelihood loss function that is based upon differences between the original and reproduced correlation matrices, and provides an overall chi-square test of the goodness-of-fit of the proposed model. As described by Joreskog (Joreskog & Sorbom, 1978), it also determines a test of identification, asymptotically efficient estimates of each free parameter in

2 The most general model and each of the alternative models could also be specified in terms of x-variables instead of y-variables. Other specifications of the most general model (e.g., permitting correlated errors, etc.) are also possible.

proposed model under the assumptions of multivariate normality, estimates of the standard error of each fitted parameter -- allowing a statistical test of its difference from zero, and additional information that is helpful in determining what changes in the proposed model would provide a better fit to the data (see Maruyama & McGarvey, In Press, for further discussion).

Table III

Configuration of the LAMBDA and PSI Matrices in the LISREL Model

LAMBDA (Factor Loading Matrix)

		Inst Method Factor	Stdt Method Factor	Lrn Trait Factor	Ent Trait Factor	Org Trait Factor	Grp Trait Factor	Ind Trait Factor	Brd Trait Factor	Exm Trait Factor	Asg Trait Factor	Work Trait Factor
		Eta 1	Eta 2	Eta 3	Eta 4	Eta 5	Eta 6	Eta 7	Eta 8	Eta 9	Eta 10	Eta 11
Instructor	Learning/Value	Ilrn	0	Ilrn	0	0	0	0	0	0	0	0
	Enthusiasm	Ient	0	0	Ient	0	0	0	0	0	0	0
	Organization	Iorg	0	0	0	Iorg	0	0	0	0	0	0
	Group Interaction	Igrp	0	0	0	0	Igrp	0	0	0	0	0
	Individual Rapport	Iind	0	0	0	0	0	Iind	0	0	0	0
	Breadth	Ibrd	0	0	0	0	0	0	Ibrd	0	0	0
	Examinations	Iexm	0	0	0	0	0	0	0	Iexm	0	0
	Assignments	Iasg	0	0	0	0	0	0	0	0	Iasg	0
	Workload/Difficulty	Iwrk	0	0	0	0	0	0	0	0	0	Iwrk
Student	Learning/Value	0	Slrn	Slrn	0	0	0	0	0	0	0	0
	Enthusiasm	0	Sent	0	Sent	0	0	0	0	0	0	0
	Organization	0	Sorg	0	0	Sorg	0	0	0	0	0	0
	Group Interaction	0	Sgrp	0	0	0	Sgrp	0	0	0	0	0
	Individual Rapport	0	Sind	0	0	0	0	Sind	0	0	0	0
	Breadth	0	Sbrd	0	0	0	0	0	Sbrd	0	0	0
	Examinations	0	Sexm	0	0	0	0	0	0	Sexm	0	0
	Assignments	0	Sasg	0	0	0	0	0	0	0	Sasg	0
	Workload/Difficulty	0	Swrk	0	0	0	0	0	0	0	0	Swrk

PSI (Correlations Between Factors)

	Inst Method Factor	Stdt Method Factor	Lrn Trait Factor	Ent Trait Factor	Org Trait Factor	Grp Trait Factor	Ind Trait Factor	Brd Trait Factor	Exm Trait Factor	Asg Trait Factor	Work Trait Factor
	Eta 1	Eta 2	Eta 3	Eta 4	Eta 5	Eta 6	Eta 7	Eta 8	Eta 9	Eta 10	Eta 11
Instructor Method	1.0										
Student Method	r1.2	1.0									
Learning/Value	0	0	1.0								
Enthusiasm	0	0	r4.3	1.0							
Organization	0	0	r5.3	r5.4	1.0						
Group Interaction	0	0	r6.3	r6.4	r6.5	1.0					
Individual Rapport	0	0	r7.3	r7.4	r7.5	r7.6	1.0				
Breadth	0	0	r8.3	r8.4	r8.5	r8.6	r8.7	1.0			
Examinations	0	0	r9.3	r9.4	r9.5	r9.6	r9.7	r9.8	1.0		
Assignments	0	0	r10.3	r10.4	r10.5	r10.6	r10.7	r10.8	r10.9	1.0	
Workload/Difficulty	0	0	r11.3	r11.4	r11.5	r11.6	r11.7	r11.8	r11.9	r11.10	1.0

Note: All elements with the value of 0 or 1.0 represent fixed values, while all other values are estimated by the LISREL program. The third matrix, the THETA matrix, is an 18 x 18 diagonal matrix in which the diagonal values represent variance attributable to random error and/or reliable uniqueness. In the present application, these values were estimated independently and fixed in this analysis. In other applications, these can also be estimated by the LISREL program.

The minimum condition for fitting the complete model (Alwin, 1974; Werts, et al., 1972) is that there be at least three traits and three methods. This means that, without making any further assumptions (i.e., constraining more parameters to a fixed value), the most unrestricted form of the model is not identified and cannot be tested. On the basis of both substantive (Boruch & Wolins, 1970) and practical (Althauser & Herberlein, 1970) considerations, the correlations between traits and methods were set to zero. However, the model was still not identified. [3] In order to obtain a testable model, the reliability of the student and instructor ratings (coefficient alphas based upon the items that define each of the factors) were computed and used as a basis for determining the values of THETA (error /uniqueness components). Preliminary analysis indicated that this resulted in a very poor fit to the data, suggesting that each factor may have a unique component as well as error. Consequently, the 18 variables were entered into a standard factor analysis procedure (Nie, et al., 1975) and an 11 factor solution was determined. The communalities resulting from this analysis (see Nie, et al., 1975, pp.475-477) were then used to determine an estimate of the THETA elements. This procedure, which provides an estimate of the combined uniqueness and unreliability, provided a much better fit to the data. Consequently, in order to circumvent the identification problem, all the THETA elements were set at a value of 1 minus the communality of the variable. This same set of values was used for each of the models to be discussed.

3 A necessary, but not sufficient, condition of identification is that there are at least as many observed correlations as free parameters. This is not a sufficient condition, since there may be overriding constraints (Kenny, 1979). The LISREL program, however, checks for identification (see Joreskog, 1978; Joreskog & Sorbom, 1978; for further discussion) and generates an error message when the proposed model is not identified.

The LISREL program provides a chi-square test of the overall goodness-of-fit, but the test is dependent upon the sample size. A reasonably good fit to the data will produce a statistically significant chi-square value if the sample size is large, while a poor fit based upon a small sample size may not result in a statistically significant chi-square value. Alternative indices of fit (Schmitt, 1978) include the ratio of the chi-square to the degrees of freedom, the average difference between the reproduced and original correlation matrix, and a reliability coefficient developed by Tucker and Lewis (1973). The reliability coefficient is defined as:

r = (Co - Cm)/ (Co - 1) Where:
Co = the chi-square/df ratio for a null model,
Cm = the chi-square/df ratio for the tested model,
1 = the expected value of the chi-square/df ratio

This coefficient scales the chi-square goodness-of-fit value along a scale that varies from zero (the null model) to 1.0, though values greater than 1.0 are possible. The null model generally consists of specifying SIGMA to be a diagonal matrix, testing the assumption that the measured variables are uncorrelated. Tucker and Lewis suggest a value of .90 or higher provides an adequate fit to the data. Their coefficient provides an index of the proportion of the variance that is explained by the model rather than a statistical test of its goodness-to-fit. For example, a model that is tested with a small number of cases (e.g., less than 50 cases) may result in statistically insignificant differences from the observed data (based upon the chi-square test) and yet only have a Tucker-Lewis reliability coefficient of .50. This suggests that while the proposed model fits the data in a statistical significance sense, the test was a very weak one and there may be many possible models that would do as well. Alternatively, a model that is tested with a large number of cases may have a Tucker-Lewis reliability of .99 and still have a statistically significant chi-square value.

The estimated parameters for the general model described in this section are presented in Table IV. The chi-square value for this model is statistically significant, but the chi-square/df ratio was only 2.38 and the Tucker-Lewis reliability coefficient is .98. This indicates a good fit to the data.

Table IV

Configuration of the LAMBDA and PSI Matrices in the LISREL MODEL

LAMBDA (Factor Loading Matrix)

		Inst Method Factor	Stdt Method Factor	Lrn Trait Factor	Ent Trait Factor	Org Trait Factor	Grp Trait Factor	Ind Trait Factor	Brd Trait Factor	Exm Trait Factor	Asg Trait Factor	Work Trait Factor
		Eta 1	Eta 2	Eta 3	Eta 4	Eta 5	Eta 6	Eta 7	Eta 8	Eta 9	Eta 10	Eta 11
Instructor	Learning/Value	-0.666	0.0	0.525	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Enthusiasm	-0.245	0.0	0.0	0.638	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Organization	-0.067	0.0	0.0	0.0	0.523	0.0	0.0	0.0	0.0	0.0	0.0
	Group Interaction	0.174	0.0	0.0	0.0	0.0	0.730	0.0	0.0	0.0	0.0	0.0
	Individual Rapport	0.055	0.0	0.0	0.0	0.0	0.0	0.653	0.0	0.0	0.0	0.0
	Breadth	0.093	0.0	0.0	0.0	0.0	0.0	0.0	0.587	0.0	0.0	0.0
	Examinations	0.236	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.716	0.0	0.0
	Assignments	-0.156	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.839	0.0
	Workload/Difficulty	-0.097	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.643
Student	Learning/Value	0.0	0.697	0.719	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Enthusiasm	0.0	0.571	0.0	0.730	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Organization	0.0	0.729	0.0	0.0	0.735	0.0	0.0	0.0	0.0	0.0	0.0
	Group Interaction	0.0	0.480	0.0	0.0	0.0	0.648	0.0	0.0	0.0	0.0	0.0
	Individual Rapport	0.0	0.612	0.0	0.0	0.0	0.0	0.515	0.0	0.0	0.0	0.0
	Breadth	0.0	0.567	0.0	0.0	0.0	0.0	0.0	0.821	0.0	0.0	0.0
	Examinations	0.0	0.829	0.0	0.0	0.0	0.0	0.0	0.0	0.527	0.0	0.0
	Assignments	0.0	0.615	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.579	0.0
	Workload/Difficulty	0.0	0.101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.879

PSI (Correlations Between Factors)

	Inst Method Factor	Stdt Method Factor	Lrn Trait Factor	Ent Trait Factor	Org Trait Factor	Grp Trait Factor	Ind Trait Factor	Brd Trait Factor	Exm Trait Factor	Asg Trait Factor	Work Trait Factor
	Eta 1	Eta 2	Eta 3	Eta 4	Eta 5	Eta 6	Eta 7	Eta 8	Eta 9	Eta 10	Eta 11
Instructor Method	1.0										
Student Method	-0.271	1.0									
Learning/Value	0.0	0.0	1.0								
Enthusiasm	0.0	0.0	0.273	1.0							
Organization	0.0	0.0	0.335	0.324	1.0						
Group Interaction	0.0	0.0	0.162	0.057	-0.183	1.0					
Individual Rapport	0.0	0.0	-0.210	0.085	0.127	0.211	1.0				
Breadth	0.0	0.0	0.437	0.287	0.521	-0.017	-0.176	1.0			
Examinations	0.0	0.0	0.202	0.189	0.466	0.014	0.350	0.179	1.0		
Assignments	0.0	0.0	0.409	-0.012	0.231	0.101	0.263	0.200	0.332	1.0	
Workload/Difficulty	0.0	0.0	0.097	-0.003	-0.002	-0.003	0.117	0.198	0.074	0.377	1.0

THETA EPS: Matrix of Uniqueness/Error Variances (values are the diagonals of an 18 x 18 square matrix)

Instructor Self Evaluations of

Learn	Enthus	Organ	Group	Individ	Breadth	Exams	Asignment	Workld
0.343	0.515	0.662	0.433	0.516	0.542	0.423	0.277	0.560

Student Evaluations of

Learn	Enthus	Organ	Group	Individ	Breadth	Exams	Asignment	Workld
0.115	0.195	0.129	0.337	0.409	0.159	0.193	0.447	0.236

Inspection of the values suggest that each of the nine trait factors is well defined, that there is substantial method variance associated with the student ratings and some associated with instructor self-evaluations, and that the traits are moderately correlated.

Comparisons of two nested models can be made by taking the difference in their two chi-square values and testing this against the difference in the degrees of freedom (Kenny, 1976; Schmitt, et al., 1977). For example, one of the alternative formulations of the general model postulated that the 36 correlations between the nine trait factors (in the PSI matrix) are really zero. Analysis of this model produced a chi-square value (543.6 with 134 degrees of freedom -- see Table IV) that was necessarily larger than the value obtained with the general model (233.6 with 98 degrees of freedom); the two chi-squares would only be equal if the 36 estimated correlations in the general model were each equal to zero. Since the difference in the two chi-square values (310.0) assessed against the difference in degrees of freedom (36) is statistically significant and substantial, the analysis argues for the general model.

In order to make more precise tests of the data, a series of alternative models were derived and their ability to fit the data (using the Tucker-Lewis coefficient as an index) was examined. These models are summarized in Table V -- including the general and null models -- along with their chi-squares, degrees of freedom, chi-square/df ratios, and Tucker-Lewis reliabilities. Alternative models considered the consequences of eliminating one or more of the trait factors, eliminating one or both of the method factors, or constraining some of the correlations between these factors to be zero. For example, the student method factor was eliminated by setting all the factor loadings for this factor (the Eta 2 factor in the LAMBDA matrix) equal to zero and setting all the correlations (in the PSI matrix) involving this factor -- including the diagonal element -- equal to zero. For this example the alternative model provides a poorer fit to the data. Similarly, the elimination of the instructor method factor also produces a poorer fit than does the general model, but a better fit than when the student method factor was eliminated.

TABLE V

Summary of Tested Models

	Model Description	ChiSq	DF	ChiSq/DF	Rel
I	9 correlated trait factors, 2 correlated method factors, no trait-method correlations (the general model depicted in Table III)	233.6	98	2.38	.977
II	9 correlated trait factors, 1 "general" factor with loadings on both student & instructor ratings, no trait - "general" correlations	330.7	99	3.34	.962
III	9 correlated traits, 1 student method factor (no faculty method factor), no trait-method correlations	387.7	108	3.59	.952
IV	9 correlated trait factors, 1 faculty method factor (no student method factor), no trait - method correlations	550.6	108	5.10	.933
V	9 UNcorrelated trait factors, 2 correlated method factors, no trait - method correlations	543.6	134	3.99	.951
VI	9 UN correlated traits, 2 UNcorrelated methods, no trait-method correlations	544.3	135	4.03	.950
VII	9 correlated traits, NO method factors	1126.9	117	9.63	.858
VIII	NO trait factors, 2 correlated method factors	4213.7	152	27.7	.561
IX	Null Model (a diagonal SIGMA matrix for which values were determined only by the values in the THETA --error/uniqueness-- matrix)	10564.8	171	61.8	.000
X	8 Correlated traits (the Organization & Breadth trait factors were combined), 2 Correlated Method factors, no trait-method correlations	466.0	106	4.4	.944

NOTE: The values under the column headed "Rel" are Tucker-Lewis reliability coefficients; a measure of the proportion of variance that is explained by the model being tested. Model XI, the least restricted model and the model with the best fit was not identified without further constraints of the model. However, by fixing several near-zero coefficients in the PSI matrix to be zero, the model was identified and could be tested.

In summary the analyses of these alternative models indicates that:

1) Substantial portions of the variance in the data were accounted for by both the different traits and the different methods. However, exclusion of the trait factors was far more detrimental to the fit of the model than was exclusion of the method factors.

2) The elimination of correlations among the traits produced a poorer fit to the data, indicating that the underlying traits considered in this study are truly correlated.

3) While there was substantial method variance in both the student and the instructor ratings, elimination of the student method factor was more detrimental than was elimination of the instructor method factor. This indicates that there is more method variance in the student ratings than in the instructor self evaluations.

The values in Table IV can also be used to derive descriptive statistics similar to those obtained with the ANOVA model, and to assess the adequacy of each of the measures separately. Trait and method variance components for the general model were estimated by squaring the factor loadings in the LAMBDA matrix (Joreskog, 1974), and are presented in Table VI. The trait variance in every measure, both student and faculty ratings, was substantial and statistically significant. The average trait variance across all measures was approximately twice that of the average method variance. The trait variance in the student ratings was somewhat higher than for the faculty self evaluations. However, the faculty self evaluations had little method variance (except for the Learning/Value factor), while that observed with the student ratings was substantial. One factor, Learning/Value, had substantial method variance for both student and instructor ratings. For instructor ratings of Learning/Value, there was substantially more method variance than trait variance. Similarly, there was more method variance in the student ratings of Examinations than there was trait variance.

TABLE VI

Trait and Method Variance Components For Model I (the General Model)

	Instructor Ratings			Student Ratings		
	Trait	Method	Error	Trait	Method	Error
LEARNING/VALUE	.275	.444	.343	.517	.486	.115
ENTHUSIASM	.407	.060	.515	.533	.326	.195
ORGANIZATION	.274	.004	.662	.540	.536	.123
GROUP INTERACT	.536	.030	.433	.420	.230	.337
INDIVID PARTCT	.426	.003	.519	.265	.374	.409
BREADTH	.345	.009	.582	.674	.321	.159
EXAMINATIONS	.513	.056	.423	.278	.687	.193
ASSIGNMENTS	.704	.024	.277	.335	.378	.447
WRKLD/DIFFCLTY	.413	.009	.560	.773	.010	.236
Mean Across All 9 Evaluations	.432	.171	.475	.481	.372	.246

NOTE: Variance components were derived by squaring the Trait and Method factor loadings from Table V, and using the unsquared value from the Theta Epsilon matrix.

Application of the matrix equation (equation 1) or the equivalent tracing rule (Schmitt, 1978; Kenny, 1979) allows the decomposition of each reproduced correlation into components that are due to trait variation, method variation, and trait-method interactions. As previously discussed, one of the limitations of both the Campbell-Fiske and ANOVA techniques is that they make inferences about latent or unobserved variables that are based upon observed relationships. For example, the true trait variation in the convergent validities may be systematically inflated or deflated, depending upon the influence of the method or trait-method interactions. A computational equation for decomposing each reproduced correlation into distinct components is presented in Table VII. Application of this decomposition for each of the reproduced correlations indicated that there was very little method variation in any correlations other than the correlations among the student ratings.

A classic problem in the application of factor analysis is the determination of the number of factors to be extracted. Researchers typically resort to heuristic guidelines. In the present application, a precise statistical test can be used to test the consequences of combining two or more factors (see Joreskog, 1974). The Organization and Breadth of Coverage trait-factors were consistently among the most highly correlated in each of the different models (e.g., see PSI matrix in Table V). Furthermore, these two factors seem to be conceptually related as well. Consequently, an eight-trait solution was tested that combined these two factors. This was accomplished by setting all the factor loadings (in the LAMBDA matrix) for the Organization factor to zero, and fixing all the correlations between the old Organization factor (in the PSI matrix) -- including the diagonal -- equal to zero. The factor loadings for the Organization items on the Breadth and Coverage factor (in the LAMBDA matrix) were

then set free so that their values could be estimated. The results of this model, however, produced a substantially poorer fit to the data than did the general model (see Table V). This implies that the best description of the data requires all nine trait factors, or at least that these two should not be combined. This application, testing the implications of combining traits (or methods), provides an important advantage of the LISREL modeling approach. Kavanagh, et al. (1971) suggest, for example, that the actual number of traits to be considered depends upon the nature of the research and the biases of the investigator. The LISREL modeling approach provides a more precise method of evaluating the optimal number of factors to be considered. This is particularly important in studies that, unlike the present application, do not start with measures that have a well defined factor structure.

Table VII

Decomposition of Reproduced Correlations

General Equation for the Decomposition of any Reproduced Correlation

The Correlation Between any Measure (X) and any other Measure (Y)

Trait Component		Method Component		Trait-Method Interaction Component
R X Y = <(TX)X(TY)X(RTXTY)>	+	<(MX)X(MY)X(RMXMY)>	+	<(MX)(TY)X(RMXTY)> + <(MY)X(TX)X(RMYTX)>

Where:
TX : The Trait Loading (in Lambda Matrix) for X-Variable
TY : The Trait Loading (in Lambda Matrix) for Y-Variable
RTXTY : The Correlation (in PSI Matrix) Between Trait of X-Variable and Trait of Y-Variable
MX : The Method-Factor Loading (in Lambda Matrix) of X-Variable
MY : The Method-Factor Loading (in Lambda Matrix) of Y-Variable
RMXMY : The Correlation (in PSI Matrix) Between Method of X-Variable and Trait of Y-Variable
RMXTY : The Correlation (in PSI Matrix) Between Method of X-Variable and Trait of Y-Variable
RTXMY : The Correlation (in PSI Matrix) Between Trait of X-Variable and Method of Y-Variable

Decomposition of a Convergent Validity Coefficient: Correlation Between Instructor Ratings of Breadth (X) and Students Ratings of Breadth (Y)

= <(.587)X(.821)X(1.0)> + <(.093)X(.729)X(-.271)> + <(.093)(.821)X(0.0)> + <(.729)X(.587)X(0.0)>

Decomposition of a Heterotrait - Heteromethod Correlation: Correlation Between Instructor Ratings of Organization (X) and Student Ratings of Breadth (Y)

= <(.523)X(.821)X(.466)> + <(-.067)X(.567)X(-.271)> + <(-.067)(.821)X(0.0)> + <(.567)X(.523)X(0.0)>

Decomposition of Two Monotrait - Heteromethod Correlations: Correlations Between Instructor Ratings of Organization (X) and Instructor Ratings of Breadth (Y)

= <(.523)X(.587)X(.466)> + <(-.067)X(.567)X(1.0)> + <(-.067)(.587)X(0.0)> + <(.567)X(.523)X(0.0)>

Correlation Between Student Ratings of Organization (X) and Student Ratings of Breadth

= <(.735)X(.821)X(.466)> + <(.729)X(.567)X(1.0)> + <(.729)(.821)X(0.0)> + <(.567)X(.735)X(0.0)>

Note: For this particular application (see Table IV) all the trait-method interactions were fixed to be zero. So RTXMY and RTYMX are automatically zero. When the X-variable and Y-variable share a common trait (method) the correlation between the traits (methods) is 1.0.

Discussion

The purpose of this study was to compare different techniques for analyzing multitrait-multimethod matrices. In particular, the conclusions based upon the Campbell-Fiske criteria were compared with those generated by the ANOVA model and the set of LISREL models. At the most general level each of the different approaches showed good support for both the convergent and divergent validity, but also indicated some method or halo bias. The Campbell-Fiske criteria, through inspection, showed that agreement on any one trait was relatively independent of agreement on other traits (criterion 2), that the method variance was more pronounced in the student ratings (criterion 3), and that there was evidence of trait covariation that was independent of method (criterion 4). The ANOVA model indicated that the variance component for the divergent validity effect was approximately twice that for the method/halo effect. LISREL modeling provided precise tests of each of the observations generated by the Campbell-Fiske criteria, provided a statistical summary similar to that generated by the ANOVA model, and also estimated separate method and trait variance components for each of the different measures. Analysis of the various LISREL models also provided tests of additional hypotheses that were not testable with either the Campbell-Fiske or the ANOVA approaches.

As previously discussed, there are several important limitations of the Campbell-Fiske approach to analysis of multitrait-multimethod matrices. The most important are: 1) the informal nature of criteria and the lack of clear statements of what constitutes satisfactory results: 2) the inability to provide and incorporate information about the reliability of the measures (particularly if reliability

estimates are not available): 3) the cumbersome and unwieldy number of comparisons that must be made for large problems: 4) the ambiguity between trait variance, trait covariance, and method variance: 5) the reliarce on observed variables for making speculations about latent factors: and 6) the lack of any meaningful summary statistics that describe the data.

Despite these problems, the Campbell-Fiske criteria performed well in the present application. Each of the descriptive speculations bases upon this analysis were confirmed with the more rigorous tests of alternative LISREL models. The approach, while lacking rigor, does provide an important initial assessment of convergent and discriminant validity, and method/halo biases. The popularity of the method, the ease of its application, the heuristic appeal of the criteria, and the usefulness of interpretations all dictate that these criteria continue to be used for the preliminary inspection of any multitrait-multimethod matrix.

The limitations with the ANOVA model, though perhaps less apparent, are more numerous than those encountered with the Campbell-Fiske analysis. The principal advantage in the use of this approach is that it provides a convenient summary of the relative magnitude of trait and method effects and a test of their statistical significance. However, the appropriateness of the test and the summary depend upon many of the same underlying assumptions that were discussed with the Campbell-Fiske analysis, and the detailed inspection of the multitrait-multimethod matrix required by the Campbell-Fiske approach will often provide an indication of problems that may be overlooked in the deceptively simple summary statistics resulting from the ANOVA analysis. Finally, many of the heuristic speculations that result in the application of the Campbell-Fiske criteria will be lost if only the ANOVA model is used. For example, application of the Campbell-Fiske criteria indicated that there was considerably more method/halo effect in the student ratings than in the instructor ratings, that there was true trait covariation among the different traits that was independent of method, and that the correction for unreliability reduced the method/halo effect in the student ratings. None of these findings could have been identified by the ANOVA model. Consequently, it is not advisable to use only the ANOVA model to analyze multitrait-multimethod matrices. It does, however, provide useful summary statistics that can SUPPLEMENT the Campbell-Fiske criteria.

The limitations in the application of the LISREL models stem primarily from the difficulty of use. Paul Lohnes (1979, p.334), an influential researcher and textbook author in the application of quantitative analysis, recently stated that "LISREL is a complex and expensive fitting and testing machine to which the author does not have access". The key points seem to be the complexity, the expense, and the lack of availability. The LISREL program is commercially available for a rather nominal charge, so availability is not a critical problem. Complexity represents a large initial hurdle that must be overcome, in much the same way that the complexity of multiple regression was a limitation of its application before the publication of the Draper & Smith (1966) text. Similarly, the complexity of LISREL will become less of a problem as the technique becomes more widely known and applied. The expense -- in terms of computer time -- is an important limitation that probably will not be easily resolved. While many finite problems -- the kind that are likely to appear in textbooks -- can be solved with small amounts of computer time, exploration of large scope problems quickly becomes very expensive. This will be a particularly important limitation to the novice user who may be forced to use considerable amounts of computer time just in formulating the problem.

Beyond these general difficulties in using LISREL, its application to analysis of multitrait-multimethod data also imposes other limitations. In order to test a model with free parameters for all the off-diagonal values in the PSI matrix (correlations between the factors) and the THETA matrix (the uniqueness/error variances) a minimum of three traits and three methods are needed. However, as demonstrated in this study, a variety of constraints can be imposed that allow testing of a variety of less general models. Even when there are an adequate number of traits and methods, it is necessary to have a large number of cases in order to provide strong tests of alternative models and to obtain high Tucker-Lewis reliability coefficients. This is particularly important when the researcher sequentially develops alternative models on the basis of prior analysis of the same data. This problem, taking advantage of chance variation that may be specific to the particular data being considered, is not unique to LISREL analysis, and the best control for the problem is to cross-validate the findings.

Despite these limitations, LISREL modeling is clearly the superior method to use in the analysis of multitrait-multimethod data. In summary, some of its advantages are:

1) it tests inferences that are based upon the underlying latent variables rather than relationships between observed variables;

2) it distinguishes variance due to traits and methods;

3) it allows comparison of a variety of alternative formulations of the basic model and an overall test of the goodness-of-fit for each proposed model,

4) it provides a separate statistical test of each estimated parameter against the null hypothesis of a zero coefficient;

5) it provides convenient summary statistics of the amount of trait and method variance in each separate measure, in each set of measures, and for all the data combined;

6) it allows the decomposition of each observed correlation in components that are attributable to trait and method effects;

7) it provides estimates of the reliability of each measure that are incorporated into the analysis;

8) it provides an empirical test for the existence of correlations among traits, among methods, and between traits and methods;

9) it provides an empirical test of the number of trait-factors and method-factors that provide the best fit to the data.

These advantages, particularly when compared to those of alternative techniques, demonstrate the importance of using LISREL modeling in the analysis of multitrait-multimethod data.

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Students' Evaluations of College/University Teaching: A Description of Research and an Instrument

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Background

The purpose of this review is to summarize research that led to the development of SEEQ (Students' Evaluations of Educational Quality). SEEQ is an instrument and a programme for collecting students' evaluations of college/university teaching. Research presented in this review is described in greater detail in a series of technical reports and publications. This research, in addition to guiding SEEQ's development, has also provided an academic credibility that is essential in winning faculty support. It is hoped that this review may serve as both a model and encouragement to academic units seeking to implement or improve systematic programs of students' evaluations.

Research and development on the first SEEQ, which is substantially similar to the current version, was conducted at the University of California, Los Angeles (UCLA). This effort began with a Task Force on the Evaluation of Teaching that examined evaluation practices at UCLA and other universities, and made recommendations that included the development of a campus-wide program of students' evaluations of teaching. Based upon current practices, interviews with students and faculty, and a review of the evaluation literature, an extensive item pool was developed. The work done by Hildebrand, Wilson and Dienst (1971) at the University of California, Davis was particularly important in developing this pool of items. Several different pilot surveys -- each consisting of 50 - 75 items -- were administered to classes in different academic departments. Students, in addition to making ratings, were asked to indicate the items they felt were most important in describing the quality of teaching. Similarly, faculty were asked to indicate the items they felt would provide them with the most useful feedback about their teaching. Students' open-ended comments were reviewed to determine if important aspects had been excluded. Factor analysis identified the dimensions underlying the student ratings, and the items that best measured each. Reliability coefficients were compiled for each of the evaluation items. Finally, after several revisions, four criteria were used to select items to be included on the UCLA version of SEEQ. These were: 1) student ratings of item importance, 2) faculty ratings of item usefulness, 3) factor analysis, and 4) item reliabilities. During the last six years over 500,000 of these forms have been completed by UCLA students from more than 50 academic departments in over 20,000 courses. The results of the evaluations are returned to faculty as feedback about their teaching, are used in tenure/promotion decisions, and are published for students to use in the selection of courses.

The current version of SEEQ (see Appendix I) was developed at the University of Southern California (USC). A preliminary version of the instrument was adopted on a trial basis by the Division of Social Sciences, pending the outcome of research on the instrument. On the basis of much of the research summarized in this review, the current form was unanimously endorsed by the Dean and the Department Chairpersons in the Division, and its use required in all Social Science courses. The program was later adopted by other academic units at USC, and over 250,000 SEEQ forms have been completed by USC students over the last four years.

[1] Grateful acknowledgements are extended to John Schutz, Joseph Kertes, and Robert Linnell of the University of Southern California, and Raymond Orbach, James Trent, Robert Pace, and Leon Levine of the University of California, Los Angeles, who supported the student evaluation program at their universities. Thanks are also extended to each of the coauthors of studies that led to the development of SEEQ, and particularly to Jesse Overall. The author was employed as Director of the Evaluation of Instruction Program at UCLA (1972-74), and as Head of Evaluation Services at USC (1976-80) during the time this research was being conducted. Requests for reprints should be sent to Herbert W. Marsh, Department of Education, University of Sydney, Sydney, NSW 2006, Australia.

Description of the Instrument

The SEEQ survey form is presented in Appendix I. The one-page evaluation isntrument is self-explanatory, easily administered, and computer scorable. The form strives for a compromise between uniformity and flexibility. The standardized questions used to evaluate all courses measure separate components of instructional effectiveness that have been identified with factor analysis. Provision for Supplemental Questions allow the individual instructor or academic unit to design items unique to specific needs. Adequate provision for student comments to open-ended questions is provided on the back of the form.

A sample of the two-page summary report prepared for each course is presented in Appendix II (the actual report appears on 8.5 inch X 15 inch computer paper). The summary report, along with the completed surveys that contain students' open-ended comments, are returned to the instructor. Copies of the report are also sent to the Department Chairperson and/or the Dean of the particular academic unit. The data upon which the report is based is permanently stored in a computer archive system by the Office of Institutional Studies, the central office that processes the forms. In the report, the evaluation factor scores, the overall summary ratings, and demographic/background items are presented on page 1, while the separate rating items appear on page 2. Each item is summarized by a frequency distribution of student responses, the mean, the standard error, and the percentile rank that shows how the mean rating compares with other courses. A graphic representation of the percentile rank is also shown. If any supplemental questions were used, a summary of these responses appears on a third page.

The normative comparisons provided in the summary report (the percentile ranks) play an important role in the interpretation of the ratings. First, students are universally quite generous in their evaluations of teaching. The average overall course and instructor ratings are typically about 4.0 on a one-to-five scale. Second, some items receive higher responses than do others -- overall instructor ratings are almost always higher than overall course ratings. Finally, comparisons are made between instructors teaching courses at similar levels (i.e., there are separate norms for graduate level courses, undergraduate level courses taught by faculty, and courses taught by teaching assistants). Academic units at USC (e.g., the 10 departments in the Division of Social Sciences) are given the option of using university-wide norms or norms based upon ratings from just their unit. However, ratings are only ranked against norms containing at least 200 courses.

A longitudinal summary report, summarizing all the available courses ever taught by each instructor is also produced annually. The report contains means and percentile ranks for the evaluation factor scores, the overall summary ratings, and selected background/demographic items. This information is presented separately for each course, and is averaged across all graduate level courses and across all undergraduate courses. Courses that were evaluated by fewer than 10 students or by less than 50% of the enrolled students are not included in the longitudinal averages. Important information can be gained from examining this report, beyond the convenience of having a summary of all the ratings for each teacher. The longitudinal average is not unduly affected by a chance occurrence in any one course offering, and it reflects teaching effectiveness in the range of courses that are likely to be taught by a particular instructor. The change in ratings over time provides a measure of instructional improvement. Furthermore, this summary provides a basis for determining the classes in which an individual teacher is most effective.

In addition to the individual and longitudinal summary reports, other studies and special analyses are performed at the request of the Dean and/or Chairpersons. These include requests as diverse as using previous ratings for a particular course as a

baseline against which to compare ratings after an innovative change, a determination of the trend over time in ratings of all courses within a given academic department, and the use of supplemental questions to query students about their preferences in class scheduling.

Summary of Research

Factor Analysis.

Factor analysis is used to describe the different components of teaching effectiveness actually being measured by a set of questions. Its use is particularly important in the development of student evaluation instruments, since it provides a safeguard against a "halo effect" -- a generalization from some subjective feeling about the teacher which affects ratings of all the questions. To the extent that all the items are contaminated by this halo effect, they will all blend together and not be distinguished as the separate components of teaching effectiveness that the evaluation form was designed to measure.

A well developed factor structure is also important to the interpretation of the student ratings. Broad global ratings or ratings averaged across a collection of heterogeneous items provide little diagnostic feedback and are difficult to interpret. For example, Marsh, Overall and Kesler (1979b) showed that while large classes did tend to receive lower ratings when averaged across all items, this effect was limited almost entirely to the Group Interaction and Individual Rapport factors. Similarly, an interview with a student about an earlier version of the evaluation form indicated that she had given an instructor lower ratings on several more or less randomly selected items because there were no items where she could express her sentiment that "the examinations were terrible". Even if particular components of teaching effectiveness seem less important to a particular instructor (or academic unit), their exclusion will make other ratings more difficult to interpret.

SEEQ measures nine evaluation factors (see Table 1). Marsh and Overall (1979b) presented a factor analysis of student ratings that confirmed the nine factors SEEQ was designed to measure, and

TABLE 1

Factor Analyses of Students' Evaluations of Teaching Effectiveness and the Corresponding Faculty Self Evaluations of Their Own Teaching in All 124 Courses

Evaluation Items (paraphrased)	Factor Pattern Loadings I	II	III	IV	V	VI	VII	VIII	IX
I LEARNING/VALUE									
Course Challenging/Stimulating	42(40)	22(25)	07(-10)	04(04)	07(-03)	15(27)	03(05)	16(23)	29(70)
Learned Something Valuable	51(77)	12(02)	10(-02)	04(04)	01(01)	10(00)	10(04)	17(09)	16(06)
Increased Subject Interest	57(70)	12(05)	06(07)	08(07)	02(-03)	18(08)	03(-09)	19(05)	14(-03)
Learned/Understood Subject Matter	55(57)	12(12)	13(12)	05(03)	03(11)	02(-01)	14(07)	14(-04)	-23(-11)
OVERALL COURSE RATING	36(33)	25(29)	16(09)	12(08)	09(02)	12(16)	13(-08)	14(27)	08(16)
II ENTHUSIASM									
Enthusiastic About Teaching	15(23)	55(62)	16(00)	07(02)	21(15)	10(00)	05(16)	01(09)	05(06)
Dynamic & Energetic	04(01)	70(70)	12(01)	11(06)	08(05)	06(05)	07(16)	01(05)	06(01)
Enhanced Presentations with Humor	10(04)	46(58)	-04(06)	05(01)	13(02)	12(02)	18(07)	02(-18)	-07(-10)
Teaching Style Held Your Interest	09(12)	55(64)	23(20)	14(06)	06(00)	03(14)	10(05)	06(03)	-02(-02)
OVERALL INSTRUCTOR RATING	12(27)	40(54)	23(09)	14(08)	23(02)	11(16)	10(-08)	05(27)	05(16)
III ORGANIZATION									
Instructor Explanations Clear	12(00)	07(28)	55(42)	20(09)	05(08)	10(06)	12(01)	06(23)	-08(-03)
Course Materials Prepared & Clear	04(06)	03(-02)	73(46)	06(07)	10(-02)	09(08)	06(03)	10(03)	01(12)
Objectives Stated & Pursued	14(15)	-05(-08)	49(51)	-03(01)	08(05)	19(08)	25(27)	06(05)	06(06)
Lectures Facilitated Note Taking	-03(02)	26(09)	58(53)	-11(01)	-02(05)	11(04)	15(06)	08(01)	-04(-05)
IV GROUP INTERACTION									
Encouraged Class Discussions	04(06)	10(02)	-01(-03)	83(86)	02(00)	00(00)	06(00)	06(-05)	00(-03)
Students Shared Ideas/Knowledge	03(08)	02(-04)	-04(-07)	83(83)	16(-02)	15(03)	07(11)	08(21)	00(01)
Encouraged Questions & Answers	01(-04)	06(09)	04(-06)	83(83)	20(04)	05(07)	09(12)	05(09)	00(-02)
Encouraged Expression of Ideas	07(01)	02(06)	01(-11)	83(75)					
V INDIVIDUAL RAPPORT									
Friendly Towards Students	-04(10)	17(06)	00(-06)	12(12)	68(78)	-01(-05)	13(02)	10(-05)	-07(01)
Welcomed Seeking Help/Advice	04(-10)	05(02)	03(07)	06(00)	82(75)	-04(04)	12(06)	05(20)	03(-04)
Interested in Individual Students	07(-10)	01(-09)	00(01)	14(07)	82(77)	-01(-09)	14(03)	08(-09)	02(09)
Accessible to Individual Students	02(-13)	-11(-11)	10(09)	09(-02)	62(43)	20(25)	08(13)	00(14)	04(07)
VI BREADTH OF COVERAGE									
Contrasted Implications	-05(02)	12(01)	05(03)	08(01)	-03(01)	72(84)	08(-03)	14(02)	08(-06)
Gave Background of Ideas/Concepts	04(03)	04(10)	14(09)	-03(-12)	02(-02)	71(78)	01(06)	11(-01)	03(03)
Gave Different Points of View	04(-06)	04(09)	11(11)	03(10)	06(01)	72(55)	07(17)	01(-06)	04(06)
Discussed Current Developments	23(29)	06(-04)	-04(-04)	05(12)	09(00)	56(48)	06(05)	14(18)	-01(-02)
VII EXAMINATIONS/GRADING									
Examination Feedback Valuable	-03(01)	08(03)	06(-11)	03(05)	08(13)	-04(03)	72(62)	05(-03)	09(03)
Eval Methods Fair/Appropriate	02(03)	00(-03)	03(14)	01(06)	15(00)	10(17)	74(64)	13(11)	-06(06)
Tested Emphasized Course Content	08(00)	-01(04)	11(21)	01(01)	06(00)	11(-04)	70(58)	07(10)	-02(-03)
VIII ASSIGNMENTS									
Readings/Texts Valuable	-06(09)	-03(-03)	01(07)	-01(-06)	03(07)	-07(-07)	01(11)	81(70)	02(08)
Added to Course Understanding	12(01)	-01(-12)	01(04)	04(21)	01(17)	-02(06)	07(05)	84(56)	06(10)
IX WORKLOAD/DIFFICULTY									
Course Difficulty (Easy-Hard)	-06(00)	06(-01)	04(-05)	-04(02)	-01(00)	08(00)	-04(08)	10(04)	85(78)
Course Workload (Light-Heavy)	18(-04)	-05(-01)	03(02)	01(05)	00(04)	06(01)	00(01)	00(-04)	88(86)
Course Pace (Too Slow - Too Fast)	-20(07)	12(00)	04(18)	-12(-09)	06(02)	-03(-07)	05(08)	05(-04)	63(32)
Hours/week Outside of Class	14(00)	07(00)	-11(00)	07(02)	00(02)	-04(03)	03(-08)	02(21)	93(46)

NOTE: Factor loadings in boxes are the loadings for items designed to measure each factor. All loadings are presented without decimal points. Factor analyses of student ratings and instructor self ratings (loadings in parentheses) consisted of a principal-components analysis, Kaiser normalization, and rotation to a target oblique criterion. The first nine unrotated factors for the instructor self ratings had eigenvalues of 9.2, 2.9, 2.2, 2.2, 2.0, 1.4, 1.1, 1.0, 1.0, and accounted for 68% of the variance. For the student ratings the first nine eigenvalues were 19.4, 3.3, 2.2, 1.5, 1.2, 0.9, 0.7, 0.6, 0.5, and accounted for 80% of the variance. The analyses were performed with the commercially available SPSS routine (See Nie, et. al., 1975).

these findings have been replicated in different academic disciplines and in different academic years. Even more convincing support came from a study in which faculty in 329 classes were asked to evaluate their own teaching effectiveness with the same SEEQ form that was used by their students. Separate factor analyses of the student ratings and the instructor self-evaluations both demonstrated the same nine evaluation factors that had previously been identified (see Table 1). These analyses illustrate the replicability of the rating factors and their generalizability across different methods of evaluation.

Factor scores derived from the results of factor analytic research are an important part of the summaries of the student ratings described earlier. Research described in this section is presented in more detail in Marsh, Overall & Kesler (1979), Marsh & Overall (1979b) and Marsh & Cooper (in press). Further discussion of this issue is presented in Marsh (1980b)

Reliability.

Reliability refers to the relative lack of random error in student ratings, and is a necessary prerequisite for any measurement device. Reliability is assessed by determining the consistency or stability of a measure. According to one conceptualization of reliability called the interclass correlation, a reliable item is one in which there is agreement among ratings within each class, but consistent differences between the ratings of different classes. A similar approach would be to take a random half of the students ratings from each of a large number of classes and to correlate their ratings with those of the remaining students. The reliability of a given item depends more on the number of students responding than the actual item content. The average reliability of SEEQ items is about .90 when based upon 25 students, but falls to .74 when based upon only 10 responses and is even lower for fewer responses.

An alternative determination of reliability, called coefficient alpha, considers the relative agreement among different items designed to measure the same factor. This approach does not include disagreement among students within the same class as a source of unreliability, and probably results in an inflated estimate of reliability. The coefficient alphas for the different evaluation factors in SEEQ vary between .88 and .97.

As a consequence of this research, a caution appears on any summary report that is based upon fewer than 10 responses. Similarly, these courses are not included in the computation of the longitudinal averages. Data on the reliability of SEEQ items and factors is presented in Marsh & Overall (1979b).

Long Term Stability

A common criticism directed at student ratings is that students do not have an adequate perspective to recognize the value of instruction at the end of a class. According to this argument, students will only recognize the value of teaching after being called upon to apply the course materials in further coursework and after graduation. A rather unique opportunity to test this notion arose at a California State University which had adopted an earlier version of SEEQ. Undergraduate and graduate students in the school of management evaluated teaching effectiveness at the end of each course. However, unlike most programs, the forms were actually signed by the students, allowing the identification of individual responses. One year after graduation from the program (and several years after taking a course) the same students were again asked to make "retrospective ratings" of teaching effectiveness in each course, using a subset of the original items. Since all evaluations were signed, the end-of-term ratings could be matched with the retrospective ratings. Over a several year period of time, matched sets of ratings -- both end-of-term and retrospective -- were collected for students in 100 classes. Analysis of the two sets of ratings showed remarkable agreement. The average correlation (relative agreement) between end-of-term and retrospective ratings was .83. Mean differences between the two sets of ratings (absolute agreement) was small; the median rating was 6.63 for retrospective ratings and 6.61 for end-of-term ratings. Separate analysis showed these results to be consistent at both the graduate and undergraduate levels, and across different course types.

This research is described in more detail in Marsh & Overall (1979a) and Overall & Marsh (1980b). In related research, Marsh (1977) showed that responses from graduating seniors were similar to the ratings of current students.

Validity -- Student Learning

Student ratings, one measure of teaching effectiveness, are difficult to validate since there is no universal criterion of effective teaching. Consequently, using an approach called construct validation, student ratings have been related to other measures that are assuemd to be indicative of effective teaching. If two measures that are supposed to measure the same thing show agreement, there is evidence that both are valid. Clearly this approach requires that many alternative validity criteria be used. Within this framework, evidence of the long-term stability of student ratings can be interpreted as a validity measure. However, the most commonly used criterion has been student learning as measured by performance on a standardized examination.

Methodological problems require a special setting for this research. Ideally, there are many sections (i.e. different lecture groups that are part of the same course) of a large multi-section course in which students are randomly assigned or at least enroll without knowledge of who will be teaching the section. Each section of the course should be taught by a separate teacher, but the course outline, textbooks, course objectives, and most importantly the final examination, should be developed by a course director who does not actually lecture to the students. In two separate studies applying this methodology, it was found that the sections that evaluate teaching most favorably during the last week of classes also perform best on the standardized examination given to all sections the following week. Since students did not know who would be teaching different sections at the time of registration, and sections did not differ on a pretest administered at the start of the term, these findings provide good support for the validity of student ratings.

In the second of these studies a set of affective variables was also considered as a validity criterion. Since the course was an introduction to computer programming, these included such variables as feelings of course mastery, plans to apply the skills that were gained from the course, plans to pursue the subject further, and determination of whether or not students had joined the local computer club. In each case, more favorable responses to these items were correlated with more favorable evaluations of the teacher.

These two studies are described in more detail in Marsh, Fleiner & Thomas (1975) and Marsh & Overall (1980). Similar findings, using this same methodology, are presented in Frey, Leonard, & Beatty (1975), and Centra (1977), and in studies reviewed by McKeachie (1979) and Marsh (1980b).

Validity -- Faculty Self Evaluations

Validity research such as that described above, while supporting the use of student ratings, has generally been limited to a specialised setting (e.g. large multisection courses) or has employed criteria (e.g., student retrospective ratings) that are unlikely to convince sceptics. Thus, faculty will continue to question the usefulness of student ratings until validity criteria that are both convincing and applicable across a wide range of courses are utilized. Faculty self-evaluations of their own teaching is one criterion that meets both these requirements. Furthermore, instructors can be asked to evaluate their own teaching along the same dimensions employed in the student rating form, thereby testing the specific validity of the different rating factors. In two different studies faculty were asked to evaluate their own teaching with the same evaluation form used by their students, as well as to provide background/demographic information and to express their attitudes toward the evaluation of teaching. A letter from the Dean of the Division was also sent that encouraged participation and guaranteed anonymity.

A majority of the faculty (59%) indicated that some measure of teaching effectiveness should be given more emphasis in promotional decisions. Faculty clearly agreed that student ratings were useful to the faculty themselves as feedback, and a majority of them even agreed that the ratings should be made publicly available for students to use in course selection. However, they were more sceptical about the accuracy of the student ratings and even more critical of using classroom visitation or faculty self evaluations in promotional decisions; they were somewhat less critical about colleague examination of course outlines, reading lists, and classroom examinations. Faculty also indicated a number of potential biases that they felt would substantially affect student ratings. The most frequently mentioned were Course Difficulty, Grading Leniency, Instructor Popularity, and Student

Interest in the Subject Before Taking the Course. A dilemma clearly exists. Faculty are concerned about teaching effectiveness, even to the extent of wanting it to play a more important role in their own promotions. However, many expressed doubts about each of the proposed measures of teaching effectiveness -- including student ratings. Before the potential usefulness of the student ratings can be realized, faculty and administrators have to be convinced that student ratings are valid.

In the first study, only undergraduate courses taught by faculty were considered. Despite faculty reservations about the validity of the student ratings, there was considerable student-faculty agreement in the evaluations of teaching effectiveness. Validity coefficients, the correlation between student and faculty ratings on the same factors, were statistically significant for all evaluation factors (median r = .49). Absolute agreement was also assessed by examining the mean differences between student and faculty self evaluations. Across all the evaluation items the median rating was the same for both students and faculty - 4.07, and few differences in either direction reached statistical significance.

In the second study, the same general findings were replicated with a larger sample (329 classes) that included graduate level courses and courses taught by teaching assistants (see Table 2). Student evaluations correlated with instructor self evaluations in courses taught by teaching assistants (r = .46), in undergraduate courses taught by faculty (r = .41), and even in graduate level courses (r = .39), demonstrating their validity at all levels of teaching. Furthermore, a multitrait-multimethod analysis (Campbell & Fiske, 1959) also provided evidence for the distinctiveness of each of the rating factors. For example, if a single "generalized rating factor" underlies both student and instructor ratings, then agreement on any particular factor might be a function of this generalized agreement and not have anything to do with the specific content of the factor being considered. However, if this were the case, the correlations between student and instructor ratings on <u>different</u> factors should be nearly as high as correlations between ratings on the <u>same</u> factors.

In fact, while correlations between student and instructor ratings on the same factors were high (median r = .45), correlations between their ratings on different factors were low (median r = .02). This argues for the distinctiveness of the different evaluation factors and for the use of multifactor evaluation instruments that have been developed with the use of factor analytic techniques. The findings of these two studies provide further evidence for the validity of the student ratings, suggest the possible usefulness of faculty self evaluations, and should be particularly helpful in reassuring faculty about the accuracy of the student ratings.

TABLE 2

Correlations Between Student and Instructor Self Evaluations in 329 Courses

STUDENT EVALUATION FACTORS	INSTRUCTOR SELF-EVALUATION FACTORS								
	LEARN	ENTHU	ORGAN	GROUP	INDIV	BRDTH	EXAMS	ASSIGN	WRKLD
LEARNING/VALUE	(46)	10	-01	08	-12	09	-04	08	02
ENTHUSIASM	21	(54)	-04	-01	-02	-01	-03	-09	-09
ORGANIZATION	17	13	(30)	-03	04	07	09	00	-05
GROUP INTERACTION	19	05	-20	(52)	00	-02	-14	-04	-08
INDIVIDUAL RAPPORT	03	03	-05	13	(28)	-19	-03	-02	00
BREADTH	26	15	09	00	-14	(42)	00	09	02
EXAMINATIONS	18	09	01	-01	06	-09	(17)	-02	-06
ASSIGNMENTS	20	03	02	09	-01	04	-01	(45)	12
WORKLD/DIFFICULTY	-06	-03	04	00	03	-03	12	22	(69)

<u>Note</u>: Correlation coefficients are presented without decimal points. Correlations greater than .10 are statistically significant. Values in the diagonals, the convergent validity coefficients, have been corrected for unreliability according to the Spearman Brown equation. The nine uncorrected validity coefficients, starting with Learning, would be .41, .48, .25, .46, .25, .13, .36, and .54. The median reliability (coefficient alpha) coefficient is .94 for student rating factors and .82 for instructor self-evaluation factors.

The results of the original study appear in Marsh, Overall & Kesler (1979a), while the findings of the second study are presented in Marsh & Overall (1979b) and Marsh & Cooper (in press).

Relationship with Student, Course & Instructor Characteristics

It is often feared that variables unrelated to teaching excellence may affect student ratings, and the harshest critics even suggest that faculty can "buy" favorable ratings by teaching only small courses, giving high grades, and requiring little work by students. While these attitudes are probably not held by a majority of the faculty, results cited earlier suggest that many do feel that student ratings are biased. The study of possible biases is complicated by a number of problems. First is the question of how large a relationship must be before it is considered practically significant. Second is the problem of how to interpret a relationship even if it is substantial. There are generally several alternatives and a bias may not be the most likely. For example, the positive relationship between student ratings and student learning supports the validity of the ratings, and it is unreasonable to say that student ratings are biased by student learning. While the question is complex, the first step is to determine what variables are substantially related to student ratings.

The relationship between student evaluations of 511 courses and a set of 16 student/course/instructor characteristics was examined. The set of background variables included such things as Class Size, GPA, Teacher Rank, Reason For Taking the Course, Class Level, Year in School, Expected Grade, Workload/Difficulty, and Prior Student Interest in the Subject. Separately, each background variable generally explained less than 5% of the variance in any of the student evaluation factors, and there was little indication of nonlinearity (see Table 3). The only variable that consistently demonstrated nonlinearity was Class Size -- the smallest and largest classes tended to be rated most favorably. Several multivariate techniques showed that 12-14% of the variance in the student ratings could be explained by the entire set of background variables. Three background variables were most influential; more favorable ratings were correlated with higher Prior Subject Interest, Higher Expected Grades, and higher levels of Workload/Difficulty. A path analysis showed that Prior Subject Interest was most important, and also accounted for one-third of the relationship between Expected Grades and ratings.

TABLE 3

Correlations Between 16 Background Variables and 11 Student Evaluation Scores
(N=511 Averages)

BACKGROUND VARIABLE	STUDENT EVALUATION SCORES										
	Overall Course	Overall Instructor	Learning	Enthusiasm	Organ-isation	Group Interaction	Individual Rapport	Breadth	Exam	Assignments	Workload/ Difficulty
Prior Subject Interes	33	20	44	23	-03	29	09	-03	03	23	12
Workload/Difficulty	27	14	12	06	01	-02	01	15	10	27[a]	xx
Expected Grade	21	20	29	20	01	31	17	-02	18	13	-29
Reason for Taking Course											
% General Interest Only	16	12	15	09	16	07	-02	19[a]	10	18	-13
% Major Elective	16	13	26	06	-03	21	04	18[a]	02	15	-06
% Major Requirement	-15	-12	-16	-07	-08	-04	01	26[a]	-02	-17	17
% General Ed Require	-11	-08	-17	-04	03	-28	-06	03	-09	-06	-12
% Minor/Related Field	07	04	07	03	02	02	04	12	01	07	-01
Class Level											
Course Level	17	14	21	12	-08	29	14	13	04	11	06
% Fresh-Soph in Class	-12	-12	-18	-08	-01	-28	-17	01	-09	-05	-03
% Jr.-Sr. in Class	11	01	07	21	04	05	13	03	10	09	-01
Avg. "Year in School"	11	10	20	11	-06	27	19	-06	03	04	03
Overall GPA (prior)	07	07	10	07	-06	17	14	04	07	13	12
% Division Majors	15	14	15	03	05	29	08	08	13	11	15
Enrollment	-10	-09	-14[a]	01	-03	-32[a]	-18	01	-13	-04	01
Teacher Rank	-02	-08	-10	-12	-10	-14	-05	24[a]	-14	13	11
MULTIPLE R^2 (% Variance Explained)	20%	8.9%	24.7%	5.9%	0%	23.0%	3.5%	11.3%	8.3%	12.3%	19.6%

Note: Correlations are presented without decimal points. Correlations that are underlined indicate background variables which account for at least 5% of the variance in a particular evaluation score. The value of Multiple R squared is based upon the combined effect of the subset of background variables that is most highly correlated with the evaluation score. This was determined with a step-wise multiple regression in which a new background variable was added at each step until no additional variable could increase Multiple R squared by as much as 1%. The Multiple R squared was then corrected for the number of variables in the equation.

[a] These relationships showed substantial non-linearity (i.e., quadratic and/or cubic components add at least 1% to the Variance Explained by the linear relationship and the Total Variance Explained by all components was at least 5%).

These results show that even the combined effect of the entire set of background variables has only a small impact on student ratings, but indicated that three of these background variables were most influential -- Workload/Difficulty, Prior Subject Interest, and Expected Grades. Although Workload/Difficulty is often suggested as a potential bias, the relationship found in this study was the opposite of the suggested bias. Harder, more difficult courses that require more time outside of class receive more favorable ratings.

Prior Subject Interest, the variable with the largest impact on ratings, was examined in greater detail in a separate study. A similar pattern of correlations was found between Prior Subject Interest and student ratings colelcted at both UCLA (using the earlier version of SEEQ) and USC. Prior Subject Interest was most highly correlated with ratings of Learning/Value in both settings. The relationship between Prior Subject Interest and Instructor self-evaluations was also explored in that study. Prior Subject Interest -- measured by both student and instructor perceptions -- illustrated a similar pattern of correlations with both student ratings and instructor self-evaluations. In particular, Prior Subject Interest was most highly correlated to both student and instructor ratings of Learning/Value. These findings argue that faculty actually are more effective at teaching when working with motivated students, and that this more effective teaching is accurately reflected in the student ratings.

The relationship between student ratings and Expected Grades is subject to several alternative interpretations. First, the Expected Grade effect was reduced by one-third by controlling for Prior Subject Interest. The best explanation is that Prior Subject Interest caused both better grades and a better educational experience. According to this interpretation, part of the Expected Grade relationship with student ratings is spurious. Second, the Expected Grade relationship can only be considered a bias if higher grades reflect "easy grading" on the part of the teacher. If the higher grades reflect better student achievement, then the Expected Grade relationship may support the validity of the student ratings -- better ratings are associated with more student learning. At least two facts support this interpretation. First, Prior Subject Interest is related to Expected Grades and it is more reasonable to assume that it affects student achievement rather than the instructor's grading standards. Second, faculty self evaluations of their own grading standards showed little correlation with student ratings. In reality, Expected Grades probably reflect some unknown combination of both "easy grading" and student achievement. However, even if Expected Grades do represent a real bias to the student ratings, their effect is not substantial.

These studies show that none of the suspected biases to student ratings seem to actually have much impact. Similar findings have been reported by Hildebrand, Wilson & Dienst (1971), McKeachie (1979), Marsh (1980b), and Remmers (1963). Nevertheless, as a consequence of this research, summary reports describing student evaluations also include mean responses and percentile ranks for Prior Subject Interest and Expected Grades (see Appendix II). This research is described in greater detail in Marsh (1978, 1980b). Separate studies have examined the relationship between student ratings and: 1) Expected Grades (Marsh, Overall & Thomas, 1976), 2) Class Size (Marsh, Overall & Kesler, 1979b), and 3) Prior Subject Interest (Marsh & Cooper, in press). In related research, Marsh & Overall (in press) demonstrated that student ratings are primarily a function of the instructor doing the teaching, and not the particular course or the level at which it is taught.

Instructional Improvement -- Feedback From Student Ratings

There is ample reason to believe that a carefully planned program of instructional evaluation instituted on a broad basis will lead to the improvement of teaching. Teachers, particularly those who are most critical of the student ratings, will have to give more serious consideration to their own teaching in order to consider the merits of an evaluation program. The institution of the program and the clear endorsement by the administrative hierarchy will give notice that quality of teaching is being taken more seriously -- an observation that both students and faculty will be likely to make. The results of the student ratings -- as one measure of teaching effectiveness -- will provide a basis for administrative decisions and thereby increase the likelihood that quality teaching will be recognized and rewarded. The social reinforcement of getting favorable ratings will provide added incentive for the improvement of teaching, even at the tenured faculty level. Finally, the diagnostic feedback from the student ratings

may provide a basis for instructional improvement. As described earlier, faculty at USC indicate that student ratings are useful in the improvement of a course and/or the quality of their teaching; 80% said that they were potentially useful while 59% said they actually had been useful. However, the empirical demonstration of this suggestion is more difficult to test.

In two different studies the effect of feedback from midterm evaluations on end-of-course criteria was tested. Both these studies were conducted with the multi-section course in computer programming described earlier. In the first study, students completed an abbreviated version of the student evaluation instrument at midterm, and the results were returned to a random half of the instructors. At the end of the term, student ratings of "perceived change in instruction between the beginning of the term and the end of the term" were significantly higher for the feedback group, as were ratings on two of the seven evaluation factors. Ratings on the overall course and instructor summary items did not differ, nor did student performance on the standardized final examination given to all students.

Several changes were made in the second study that was based upon 30 classes. First, midterm evaluations were made on the same evaluation form that was used at the end of the course. Second, the researchers actually met with the group of randomly selected feedback instructors to discuss the ratings. At this meeting the teachers discussed the evaluations with each other and with the researchers, but were assured that their comments would remain confidential. A third change was the addition of affective variables, items that focused on application of the subject matter and student plans to pursue the subject. At the end of the term, students of the Feedback instructors: 1) rated teaching effectiveness more favorably, 2) averaged higher scores on the standardized final examination, and 3) experienced more positive affective outcomes than students whose instructors received no feedback. Students in the Feedback group were similar to the other students in terms of both pretest achievement scores completed at the start of the term and the midterm evaluations of their teachers. These findings suggest that the feedback from student ratings, coupled with a frank discussion of their implications with an external consultant, can be an effective intervention for improving teaching effectiveness.

The details of these studies have been described in two published articles (Marsh, Fleiner & Thomas, 1975; Overall & Marsh, 1979.)

SUMMARY

In summary, research described in this study has indicated that:

1) SEEQ measures nine distinct components of teaching effectiveness as demonstrated by factor analysis. Factor analysis of faculty self evaluations of their own teaching resulted in the same factors. Factor scores based upon this research are used to summarize the student ratings that are returned to faculty.

2) Student evaluations are quite reliable when based upon the responses of 10 to 15 or more students. Class ratings based upon fewer than 10 student responses should be interpreted carefully.

3) The retrospective ratings of former students agree remarkably well with the evaluations that they made at the end of a course.

4) Student evaluations show moderate correlations with student learning as measured by a standardized examination and with affective course consequences such as application of the subject matter and plans to pursue the subject further.

5) Faculty self evaluations of their own teaching show good agreement with student ratings.

6) Suspected sources of bias to student ratings have little impact.

7) Feedback from student ratings, particularly when coupled with a candid discussion with an external consultant, can lead to improved teaching.

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TIMETABLE ANALYSIS BY COMPUTER:

A RESEARCH TECHNIQUE

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The purpose of this paper is to introduce a technique for analysing secondary school timetables in terms of the distribution of teachers throughout the timetable. The reasons for its development are two-fold. Firstly, the writer believes that the present teacher distribution in secondary schools ought to be reviewed because anomalies in distribution appear to exist. Secondly, with the growth of school based curriculum development teachers themselves are showing some interest in techniques which facilitate reflection their own context. An analysis of the school timetable is one way to achieve such reflection.

Background

Teachers are the primary resource which a principal of a school has to distribute. In practice, in State schools, this distribution occurs after teachers are allocated to schools according to State Departmental formulas and school requirements. In New South Wales, principals are required to send a staffing return to the N.S.W. Department of Education in which they have to justify alterations to the previous year's allocation. In the private and catholic secondary systems, it is usual for teachers to be directly employed by the school. To a greater or lesser extent, secondary school principals do have some control over what teaching resources are to be found in each school. How each principal allocates his staff depends upon value judgements[1] in the light of the particular context[2].

What is valued by the school may reflect the principal's values or the values may have evolved over a period of time. What the school values is sometimes expressed explicitly as school aims. At other times, school aims may not be explicitly stated, but generally known. In either case, it is more than likely that some aims may be somewhat hidden. Perhaps school aims reflect the school's intentions, whereas the reality of what a student gets out of school depends upon complex interactions of variables, two of which are explicit and hidden values of the school. The timetable is a practical expression of explicit and hidden values. It follows that an analysis of the timetables of secondary schools should expose some of the values upon which they are based. In so doing, teachers would be in a position to compare their present situation with their intentions, so that change can take place to make the reality more congruent with the intention.

The following section of this paper reviews some of the literature associated with timetables. The remainder of the paper describes the Timetable Analysis by Computer and an example. The results of the example are then discussed before the T.A.C. example results are compared with the results of a similar analysis. The paper concludes with a discussion of timetable analysis in the present secondary school context.

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[1] The values that a principal has have evolved as a result of his personal experience. They represent his personal preferences in any sphere. Consequently judgements based on values will result in acts which reflect his value frame.

[2] It is also necessary to point out that staffing allocations in some schools have evolved over time. Consequently the teacher distribution may not be a consequence of value judgements. Nevertheless it still follows that the distribution of teachers does express value judgements made at some prior time, knowingly or otherwise.

Literature Review:

There were two aims of the literature review:

a) to determine what timetable analyses had been carried out, and

b) to ascertain fundamental timetable variables.

An E.R.I.C. search of the years 1974 to May 1980, using 16[3] descriptors, provided 207 citations. A manual search of the Australian Education Index (A.E.I.) of the years 1975 to July 1980 was also carried out. No reference was found specifically concerned with the analysis of school/college timetables. Ten E.R.I.C. citations referred to computer assisted timetabling construction in Britain and North America[4]. Other E.R.I.C. citations commented on various aspects of timetable use, case studies or comparison, as did the few relevant references found in the A.E.I. Generally, the literature supported the fundamental importance of timetables to school curricula, a view shared by teachers.

Dempster, Lethbridge and Ulph (1975) considered timetable variables in timetable construction. The fundamental requirement was, accord ing to Dempster, et al, to make a matrix R (i,j) where i is a class and j is a teacher. Davies (1974) points to three factors; a) staffing, b) curriculum structure, and c) quality of the timetable. From the perspective of timetable analysis, seven fundamental timetable variables can be developed from Dempster et al and Davies. These are:

a) numbers of pupils
b) numbers of teachers
c) school structure, e.g. years 7 to 12
d) division of knowledge, e.g. subjects offered
e) time
f) number of periods taught by teachers
g) class size.

The literature search gave little direct information on timetable analysis. However, Davies (1969) does propose one method of analysing timetables. Davies developed a set of equations and laws for the purpose. The equations are used to express the actual distribution of teachers compared to an arbitrarily created standard. White (1976) reports that he had used the Davies method as the basis of short inservice course, Teacher Deployment Analysis (White, 1975) designed for secondary school principals and local education authority executives. This course had been in existence for eight years. This line of attack seemed useful but it took no account of teacher distribution by subject area.

The Timetable Analysis by Computer (T.A.C.)

T.A.C. is an extension of the work by Davies and takes advantage of the computational speed of computers. Schools are increasingly making use of computers so schools themselves could use the T.A.C.

The T.A.C. uses the class as the basic unit of analysis as does Davies. This allows the analyst to see the distribution of teachers in the timetable. Since the number of teachers is a finite and important resource, the distribution of teachers will shed some light on value assumptions inherent in the timetable.

The T.A.C. provides data on timetables which can be used by teachers in their deliberations about their school, but it can also be used by researchers in the curriculum field. Data preparation is minimal as the data can be readily gleaned from the school's master timetable though care has to be taken that all teachers are accounted for e.g. remedial teachers who sometimes have separate timetables. For research purposes, naturally the computer facility allows large numbers of analyses with some ease.

Theoretical Assumptions of the T.A.C.

In the present version of the Timetable Analysis by Computer, five variables are used.

1. f = number of pupils in a year group
2. w = number of periods in a school week[5]
3. p = number of periods which a teacher teaches per week
4. s = number of pupils in a standard class
5. a = actual number of teachers teaching the year group for a particular period in the week.

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[3]The descriptors were: School schedules, time blocks, trimester schedules, timetable, timetables, timetabling, teacher distribution, teacher allocation, curriculum subject, evaluation, analysis, computer, computers and computing.

[4]In Australia, Anderson, Cusack, Pollard and Whelan (1980) have reported a computer assisted timetable preparation technique in use in Sydney for the past five years.

[5]This may be the normal five day week or cyclic timetable 'weeks' of other than five days.

Only one variable cited in the previous section, the division of knowledge, is not included directly above. Variable 1 above takes into account the usual subdivision of the school population into year groups. This is consistent with normal timetable construction.

Variables 1 to 5 are combined to form a series of equations which give a range of information about the timetable (as shown in the example below). Holding some variables constant while varying others allows the timetable to be analysed in different ways (as shown in the following section of the paper). Essentially, the process is to set a theoretical baseline of teacher availability for each period (equation 1) and compare this baseline with the actual number of teachers teaching in each period (equation 2). The difference between the actual and theoretical number of teachers is called the Teacher Period Differential (T.P.D.)

1. Theorectical number of teachers available for the year for a particular period, i $\quad Ti = \frac{\text{number of pupils in the year}}{\text{number of pupils in the standard class}}$

$= f/s$

2. The Teacher Period Differential, T.P.D. i $\quad =$ actual number of teachers teaching in a particular period, i $- Ti$

$= ai - Ti$

The calculation of a T.P.D. for each period generates a T.P.D. matrix. Equation 3 adds together the T.P.D.i's for each year and this summation is expressed in terms of numbers of teachers, i.e. the Teacher Differential (T.D. - equation 4).

3. Period Differential, P.D. $\quad =$ Sum of all ai - Ti over the school week

$= \sum_{i=1}^{w}$, T.P.D. (i)

4. Teacher Differential, T.D. $\quad = \frac{\text{Period Differential}}{\text{Number of periods taught/week}}$

$= P.D./p$

The T.D. is the means for comparing the distribution of teachers in the timetable between years. A positive T.D. indicates a more generous allocation of staff than that required for the standard class size, s. The implications of a negative T.D. is the reverse.

These equations depend on certain assumptions. Firstly, the period length is constant. Secondly the number of periods a teacher teaches is constant. These assumptions introduce some error. Often not all periods are of the same length and not all teachers teach the same number of periods. Usually this is 30 or 31 out of 40 for assistants and about 22 for heads of departments (N.S.W. Teachers' Federation, undated). An average of the staff period allocation may be used, excluding the principal and deputy.

T.A.C. Analyses and Their Uses

There are three types of analyses.

1. The T.A.C. Basic Analysis

The Basic Analysis provides the distribution of staff in a period by period T.P.D. matrix for each year of the school and also supplies T.D. data for comparison of teacher distribution between years. In the Basic Analysis, s, p and w are held constant and f and a are obtained from the school. An example of this analysis is given in the next section.

2. The T.A.C. Comparative Analysis

Here p and w are constant and f and a are obtained in the usual way. The standard class size, s, is varied between each year according to some predetermined plan, e.g. in New South Wales to correspond to the staffing allotments for each particular year. In this analysis, the meaning of the

P.D. and T.D. is different from the Basic Analysis since s has varied. Rather the T.D. for a particular year gives a direct indication of how far the allocation has deviated from the standard now called Sc, for that particular year.

3. The T.A.C. Change Analysis - T.A.C.C.A.

T.A.C.C.A. uses two Basic Analyses between which some change has been made to the allocation. Two Comparative Analysies may also be used. This analysis is intended to be an aid to timetable construction where the first analysis indicates an undesirable T.D. and the timetable is reorganised to produce a more desirable situation which is capable of being checked by a second analysis.

An Example of the T.A.C. Basic Analysis

This example uses timetables from a moderately large country secondary school. In the example,

s = 27 pupils
p = 30 periods per week, and
w = 40 periods per week.

The variables f (number of students in each year) and a (actual number of teachers teaching the year each period) were gathered from the school. These data were analysed using a specially written fortran computer program based on the four T.A.C. equations.

Each year group has a print out of data like that in Table 1. Each cell in the matrix represents a T.P.D. i.e. the difference between actual provision and theoretical availablity of teachers to the year in each period. Each T.P.D. year matrix can be used in conjunction with the school timetable to determine the allocation of staff in different subject areas. For example, Monday period 1 is science and for period 8 the subjects are social science/P.E. with an additional staff member giving remedial help. Monday period 1 the T.P.D. is 0.30 and for period 8, 2.30. The data raise questions as to why the T.P.D.s are so different. Is there an implicit value judgement regarding the merits of science and the subjects in period 8, or has a situation developed without such consideration? Table 1 shows that the distribution of teacher resources by period across the week is uneven.

TABLE 1

T.P.D. Matrix, Year 8, School A, T.A.C., 1978 (181 pupils)

Period	Monday	Tuesday	Wednesday	Thursday	Friday
1	0.30	0.30	1.30	0.30	1.30
2	0.30	0.30	2.30	0.30	2.30
3	0.30	0.30	1.30	-4.70	1.30
4	0.30	0.30	0.30	1.30	1.30
5	1.30	2.30	1.30	1.30	0.30
6	2.30	1.30	0.30	3.30	0.30
7	1.30	1.30	0.30	3.30	1.30
8	2.30	0.30	2.30	3.30	0.30
P.D. 41.12					
T.D. 1.37					

As a result of the T.P.D. matrix, a T.D. is computed for each year. A comparison of the T.D.s between years can be most illuminating. Such comparative T.D. data are presented in Table 2. In this school over 60% of the available T.D. is allocated to the senior school which is 20% of the total population. These data illustrate what experience suggests is common in secondary schools throughout the State. Table 2 shows clear differences in teacher allocations across year groups and points to clear value judgements inherent in this distribution.

TABLE 2

Teacher Differentials, School A, 1978

	Numbers of pupils	T.D.	T.D. percentage
Year 7	193	-0.92	-9
Year 8	181	1.37	13
Year 9	253	1.05	10
Year 10	235	1.91	19
Year 11	99	2.88	28
Year 12	102	3.90	38
TOTAL	1063	10.19	99*

* Error due to rounding out of percentages.

The Basic Analysis has been carried out in four consecutive years. Table 3 illustrates these data and a similar picture emerges regarding the overall distribution of T.D. Notice, however, that over the four years the unbalanced distribution of staffing of the senior years relative to the junior years appears to be decreasing. It can also be seen that the overall staffing position appears to have improved over the four years by the T.D. change from a total of 8.55 in 1976 to 10.94 in 1979. Using this Table 3 further, it is possible to trace a particular year cohort as they get older in terms of their Teacher Differential relative to other cohorts. For example, Year 7 in 1976 appears to have been relatively disadvantaged over three years when compared to Year 7 of 1977. It would be interesting to develop this line by comparison of T.D. for each year cohort and some outcome measure, such as School Certificate results.

TABLE 3

Four Consecutive T.A.C.s, School A

Teacher Differential (T.D.)

Year	1976	%[1]	1977	%	1978	%	1979	%
7	-0.78	-12	-0.18	-3	-0.92	-9	0.32	3
8	0.67	10	0.64	10	1.37	13	1.76	16
9	0.15	2	-0.06	-1	1.05	10	1.65	15
10	1.07	16	0.40	6	1.91	19	1.42	13
11	2.30	35	2.89	45	2.88	28	2.37	22
12	3.14	48	2.71	42	3.90	38	3.43	31
TOTAL	6.55	99	6.40	99	10.19	99	10.94	100

[1]Percentages taken as the proportion of the T.D. available to the year group of the total T.D. available.

Discussion of the Results of the Example

Teachers generally believe that small classes are desirable. The T.P.D. year matrix (Table 1) highlights the present staffing of subjects in many secondary schools. In terms of teaching resources, some subjects are relatively favourably treated, which means that staff in these subjects teach smaller classes. Using the T.P.D. matrices for each year group alongside the master timetable, it is possible to see which subjects are relatively poorly treated. Generally, English, maths and science have larger class sizes than other subjects, yet it is these subjects which are considered by many to be the most important. If these three subjects are the most important and small class sizes are needed for more effective instruction, then the situation is clearly anomalous.

Table 2 indicated that teaching resources are heavily diverted into the final two years of schooling, a common situation in secondary schools. Whether this ought to be the case is open to discussion. On the grounds of equity and fairness one could argue that the primary resources of the school should be

distributed much more closely to the proportion of students in each year with respect to total school size. The present situation in New South Wales appears to reflect Departmental class size policy, a subject of hot debate between the Department and the N.S.W. Teachers' Federation (see, for example, N.S.W. Teachers' Federation, undated). Arguments for the status quo include the importance of senior school years as essential training for those who are gifted, and who need this background for further education and, now, for those who cannot find jobs. One parent recognised the dilemma at a staff-parent meeting concerned with course offerings in the final two years at the example school in mid-1979:

> "On democratic grounds, each student has a right to an equal share of the teaching resources, (yet it would seem that) the particular needs of seniors made it necessary for them to have a larger share."

It is possible to say that the discrepancy of staff allocation between senior and junior years is widened further by the common policy of giving more experienced, if not the better teachers, senior classes. The T.A.C. placed in the hands of teachers gives them a technique which concisely summarises their present situation. It provides data for them as a starting point in their deliberations on questions of value as far as the timetable is concerned.

A Comparison of Results of the T.A.C. with the Davies Analysis

The same secondary school timetable has been analysed by the Davies approach as well as the T.A.C. In this section, a comparison is made between the sets of results. This comparison is possible, since the Davies' concept, bonus and the T.A.C. concept, Teacher Differential refer to the same thing, the difference between the actual number of teachers teaching and those theoretically available and they use the same standard class size, viz. 30 pupils. These data are presented in Table 4.

TABLE 4

Comparative Results of Analyses of School A's 1978 Timetable

Year	Davies (Bonus as a percentage of total bonus)	T.A.C. (T.D. as a percentage of total T.D.)
7	-8.9	-9.0
8	13.6	13.4
9	10.6	10.3
10	19.1	18.7
11	27.8	28.3
12	37.7	38.3
	99.9	100.0

The rank order of the analyses is the same. The Modified Davies and the T.A.C. show very similar results.

General Discussion

The T.A.C. is a quick and easy means of providing data about school timetables. Its use would seem particularly appropriate in the secondary education sphere where the devolution of authority from the centre to the periphery, the schools themselves, has occurred to some degree (Walton, 1978). It would also appear to be appropriate in a climate where educational institutions are increasingly being called to be accountable (Morgan, 1978). In a recent article on this subject, Harlen suggests two criteria for accountability. Benefit to the school itself is the first criterion. She warns against the accountability system itself becoming the criterion of benefit (1979:289). Harlen's second criterion is that of justice. She uses 'justice' in the sense that -

> "to do justice to a school, the account of what it is doing should cover all that it is attempting, not just what others want to know about it" (288).

One could easily see schools involved in school based curriculum development, and others, using the T.A.C. for their own benefit. Since the timetable encompasses so much of what the school does and it is so important in the normal running of schools, the data provided by the T.A.C. gives more and important data for teachers which they can use to account for their activities. In terms of Harlen's 'justice' the T.A.C. gives important information to add to the teachers' total picture.

For the T.A.C. to be useful to schools, it must be available to them. Certainly, more and more schools are buying mini-computers. The programs used in the T.A.C. can be readily converted to the appropriate computer language since the mathematics involved is very simple.

Although the computer programs developed so far are themselves very simple, a more complex task is to include the knowledge variable, e.g. the break-up of knowledge into subjects. A potential place to include this is in the T.P.D. year matrix. As it now stands, the T.A.C. T.P.D. matrix used in conjunction with the school timetable itself is the only means of seeing how teachers are distributed throughout the timetable into the various subjects, and is, in fact the only reason for its generation. The inclusion of subject data would add considerably to the power of the T.A.C. to both teachers and researchers.

Apart from this development, the T.A.C. needs to be modified for different timetables. Cyclic timetables will cause little problem. However, there will be some timetables or part timetables which will be difficult, if not impossible to handle, e.g. a school which has a flexi-day arrangement one day per week. Yet another problem to be tackled is periods of varying lengths in the timetable.

SUMMARY

In so far as the timetable is an expression of curriculum intentions and is, at the same time, of such practical importance to the school, timetable analysis is a valuable area of study for teachers and for researchers in the curriculum field. The T.A.C. analyses timetables, using teacher distribution to expose inherent value assumptions in timetables. Teacher distribution is ideally suited to show up these questions of value since teachers are the primary resource available to schools. In the example given, considerably more of the primary resources were given to a small segment of the school. At the same time, it appears that some subjects are more important than others. These important subjects were not English maths and science, but were subject options like craft.

The T.A.C. follows the work of Davies (1969) and takes advantage of the speed of computers. It uses raw data easily collected in schools and feedback can be quick, especially if the programs can be made available to schools for use on their own mini-computers. In this way, teachers would have an increased data base for curriculum decision making as well as to allow more objective focussed consideration to be given to questions of value possibly thrown up by timetable analysis. A potential outcome of this process could be a well thought out justification of what the school is doing. As it stands now, the T.A.C. has potential for teachers in their evaluation of timetables and in planning for future ones. Furthermore, the T.A.C. offers another technique for researchers in the curriculum area, a technique whose power will be considerably increased when it is developed to include subject data.

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DISSOLVING OIL IN WATER - COMBINING ACHIEVEMENT SCORES ACROSS DISCIPLINES TO OBTAIN THE TERTIARY ENTRANCE SCORE

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Conceptual Framework

During the past decade, there has been a move away from external examinations to assess student achievement in secondary schools. There has been a greater awareness among educators of the importance of formative rather than summative aspects of assessment. However, the continued existence of quotas and restrictions on entry to tertiary institutions, particularly to the prestigious faculties within universities, has ensured that students and their parents will place considerable importance on summative assessment. The technique used to determine entry to the career or institution of their choice will be of paramount importance to each student.

The abolition of external examinations and the increased emphasis placed on school assessment has caused changes in the entry criteria for tertiary institutions in most States. In Queensland, three different methods have been used over the past decade. This paper discusses the rationale for obtaining comparability between schools and parity of esteem among subjects.

Objectives

- To place into perspective the relationship between the often rigorous requirements of measurement theory in weighting and combining scores, and practical applications to combining scores across disciplines and across objectives within disciplines.
- To compare the solutions as adopted by various educational systems in arriving at methods of ranking students in the process of selection for employment or higher education.
- To examine the characteristics of the Tertiary Entrance (TE) Score in Queensland in the light of measurement criteria discussed above.

Methodology

The first two objectives are discussed from a theoretical perspective. The implicit assumption underlying the systems used are explored. Statistical tests have been applied to compare alternatives which are available. The third objective is explored using the data from these analyses.

Theoretical Background

One of the problems in selecting measures on which to base selection for employment or higher education is determine a criterion for comparing the measures. Criteria which can be used include the predictive validity of the measures or the internal reliability of the measures themselves. These criteria are related even though they focus on entirely different properties. The former performs a function external to the measure itself, while the latter relates to internal discrimination characteristics of the measure.

It would appear as a first impression that predictive validity would be the most suitable criterion to use. In fact, a large number of prediction studies have been undertaken. These include McGaw, Warry and McBryde (1975) and Sutherland (1973). However prediction studies do not provide all the answers. Some of the problems associated with prediction studies are discussed later.

Other important considerations are the type of tests to be used, and the availability of results on the types of tests which are considered appropriate.

Lewis (1974) distinguishes between ability tests and attainment tests. Although he does not define the differences between these two types of tests explicitly, it is clear from his discussion that he regards ability tests as those which measure natural talents of individuals, that is, those talents which

are independent of the specific learning experiences to which the individual has been exposed. Most psychological tests such as I.Q. tests and aptitude tests would be classed as ability tests.

Attainment tests are those tests which measure the amount of learning which has occurred in a specific learning environment. Here, the domain from which questions may be asked is limited to the syllabus from which the learning experiences have been derived. Tests which are administered at the end of courses are attainment tests.

Lewis (1974) draws a distinction between functions of these types of tests. He claims that attainment tests are backward-looking, focussing as they do on the achievement in a course which is completed. Thus, these tests might be concerned with minimum standards, to ensure that all who are admitted to a certain course of instruction have acquired a reasonable minimum of the basic skills. They may also be used by a teacher within his classroom as a check of the efficiency of his teaching. Ability tests on the other hand are forward-looking. There aim is to distinguish between levels of ability and hence they are used as criteria for entry to positions where a high level of general ability is required. However, this distinction is not absolute, and attainment tests can, and often are, used for prediction. The Tertiary Entrance (TE) Score used in Queensland and the ACT is a measure which attempts to conbine the attributes of both types of tests to place students on a fair and equitable scale with a high level of predictive validity.

Comparison of Measures

One method of determining the effectiveness of a set of achievement scores is to measure how effectively the scores predict success in the next stage of education. Many such prediction studies have been reported.

However, the use of prediction studies is fraught with problems. These problems include:

- Only a small proportion of the population proceed to each course at the next level of education.
- Those who do proceed are not representative of the original group.
- The nature of criterion measures varies between courses and between institutions.
- The predictor variable is often used in determining eligibility of entry to the courses on which the criterion is measured.
- It is not easy to experiment with alternative selection procedures.

Aspects of Comparability of Measures

1. Comparability Between Schools

External examinations had the advantage that all students sat for the same examination and and therefore it was assumed that the standard required to obtain a particular grade would not vary from school to school. Under this system all schools had copies of the prescribed syllabuses and knew what sorts of questions the examiner would ask. Thus all students had an equal opportunity to study the topics which would be tested in the examination. The marking of papers under this system is controlled by the Chief Examiner. It appears reasonable to deduce that the variability of standards between markers is much less under this system than under any other system.

When the external examinations were abolished and replaced with internal assessment moderated between schools, some of the consistency provided by the external examination was lost. Under this system students were awarded ratings based on the perception of standards of the various grades of achievement as judged by their teachers. To achieve comparability of standards between schools, an elaborate moderation system was set up. However research from both the Schools Under Radford (Fairbairn et al, 1976) and Campbell (1976) studies both showed that teachers and students did not believe that this method achieved comparability of standards.

Another method of achieveing comparability of standards suggested in the Radford Report (1970) was the use of reference tests between schools. The Radford Report did not elaborate on the techniques which could be used to achieve this comparability using reference tests. However, it is possible to administer common tests based on core aspects of the curriculum across a range of schools. The results of these reference tests could be used as a basis for adjusting the scores of all students to achieve comparability of standards of achievement between schools. This method was attempted in some subject areas in the early 1970s. Information available about this form of reference testing indicates that the participants did not support the use of reference tests in this way.

2. Comparability Between Subjects

A method to adjust the achievement levels both between schools and between subjects suggested in the Radford Report was the use of aptitude tests. The Australian Scholastic Aptitude test (ASAT) which is developed each year by the Australian Council for Education Research (ACER) is used in Queensland to rescale school assessments. This test (ASAT) consists of 100 items. The items can be subdivided into two sections. Fifty per cent of the test is formed from items in the maths/science area and the remaining 50 per cent of the test is drawn from items in the humanities/social science areas. The justification for the use of aptitude tests is to compensate for the differences in ability levels of the groups of students taking the various subjects. Previous research indicated that more able students tend to select subjects from the foreign languages, maths and the physical sciences rather than subjects from the social sciences, humanities or from the aesthetic areas. The purpose of rescaling is to compensate for the differences in the ability levels among the various groups. Thus those subjects which are taken by the more able students are rescaled to a higher mean value than those subjects taken by the less able students.

Very few attempts have been made to establish comparability between subjects. It may not be meaningful to compare scores in subjects of different disciplines. It can be argued that the question "What level of achievement Physics is equal to a given level of achievement in History?" has no answer. To put it another way, it is not meaningful to determine whether the level of achievement which is necessary to achieve a rating of 5 in History is greater than, equal to, or less than the level of achievement necessary to achieve a rating of 4 in Physics. However where a single measure is required to rank students for entry into tertiary institutions, employment, or any other purpose, it is necessary to obtain a measure which can be compared from student to student. In situations where students have different combinations of subjects, an attempt should be made to measure achievement on a common scale before the scores are added across subjects.

Under the system of external examinations used in Queensland prior to 1973 no attempt was made to measure scores in different subjects on a common scale. The system of ratings used for the external examinations was continued in the early years of internal assessment. The sum of these ratings across a range of subjects was used to determine eligibility for entry into tertiary institutions. Instead of placing scores on a common scale, the same distribution of scores was used for all subjects. That is the proportion of each rating (7, 6, 5 etc.) was the same for each subject. Thus for subjects such as mathematics and the physical sciences, which are studied by more academically oriented and high achieving students, a higher standard of achievement is required to obtain a 5 than in one of the subjects studied by a less academic group of students. This is particularly true for General Mathematics which is generally studied by the less able mathematics students. The proportion of students obtaining a 7 in this subject is about the same as the proportion of students obtaining a 7 in Maths II. However a student who obtained a rating of 7 in General Mathematics would probably not achieve a rating of 4 if he had chosen to study Maths II. The rationale behind giving all subjects an equal distribution of ratings was an attempt to give all subjects the same esteem. It is very difficult to argue whether students taking one subject are higher achievers academically than those taking another subject. The teachers of most subjects believe that students taking their particular subjects are an academic group or that their subject requires a high level of conceptualisation. To resolve the conflict, it is necessary to find some other method of defining an academically elite group of students, and hence

a method of giving subjects studied by these groups of students a higher distribution of scores to compensate for the fact that they are competing for high scores within a more able group. The use of an aptitude test to scale achievement scores is an attempt to compensate for these differences in performance between the groups taking different subjects.

In 1970, a battery of tests, including ASAT was administered to year 12 students in Queensland as part of the Queensland Grade 12 study(McGaw, Warry and McBryde, 1975). One of the aims of the study was to attempt to find a way of obtaining achievement scores which were comparable between schools without the use of an external examination. The results of this study show that students studying maths and the physical sciences obtained higher scores on ASAT than the students studying other subjects. This study also provided the data for the development and validation of the procedures used in the calculation of the TE score in Queensland.

Choice of Subjects

In our present system of examinations, it is generally recognised that students should be given a wide range of subjects from which to choose their courses of study. The advantages are two-fold. It allows teachers freedom to specialise in those parts of the curriculum in which they have expertise. It also allows students to concentrate in disciplines in which they are able to show themselves to the best advantage.

However, there are problems associated with giving students a choice of subjects if students are to be placed on a common scale for ranking or selection. There is an implicit assumption that a student will be able to be compared with others no matter what combination of subjects have been selected. For this to be valid, a form of comparability of scores between the subjects is implied.

Problems

It can be argued that not all subjects are of the same level of difficulty.

The level of questions may differ between subjects. Some subjects may emphasise skills in the areas of content, knowledge and comprehension while in others there may be a predominance of questions probing the higher cognitive processes of analysis, synthesis and evaluation. To equate the performance of such candidates in terms of a common score, is to consider candidates with the same marks to be worthy of the same grades, is a dubious conclusion, to say the least.

The difficulty of topics varies between subjects. This is linked to the level of questions discussed above. It is not possible to compare this difference directly. Many of the better students select particular combinations of subjects (eg. Mathematics and the physical sciences). Thus the mean scores of candidates taking these subjects is an overestimate of the mean score which would be expected if all students took the subject. If we expect that all subjects would have the same distribution if all students studied all subjects, then it would be inappropriate to give all subjects the same distribution of scores when some subjects are studied by select groups of students. This problem was discussed earlier in relation to a system of adding ratings which was used in Queensland prior to 1976.

Effect of the Problems

A selection device such as the TE Score should measure what it is designed to measure. For this, we have developed the notion of global academic achievement. It must measure this consistently and produce scores which are comparable within the group being measured. Work has been done in the area of tertiary selection by Mackay and Fary (1979) and for question choice within subjects by Nuttall and Willmott (1972).

The effect of subject choice on validity of total score is to confuse completely what we are trying to measure. For our total score to be meaningful, all subjects would need to cover the same content areas at the same levels of difficulty. However, this would negate the meaning of subject

choice. Alternatively, to preserve validity, easier questions should be set in the more difficult subjects, so that all subjects measure the same level of ability. Unfortunately, we have only subjective criteria on which to base these judgements.

A compromise solution is to make comparisons in terms of combinations of subjects. For each pair of subjects, comparisons can be made for those students taking both subjects. Providing the overlapping candidature between subjects is sufficiently high, comparisons can be made for all pairs of subjects. Thus, an inherent subject difficulty can be calculated (theoretically at least) independent of the group taking the subject. These differences should be taken into account to adjust individual subject scores before they are added to obtain a global achievement measure.

Parity of Esteem Between Subjects

The problem of comparability between subjects has also been investigated in other Australian States. In New South Wales and Victoria, attempts are made to achieve comparability through an elaborate, iteritive process involving the use of computers. In these States external examinations are still used and are still the major basis for the calculation of student achievement scores. These scores are the basis of the entry criteria to tertiary institutions and to employment.

The iteritive process involves examining the scores of all students taking a pair of subjects, and adjusting the scores so that the distributions of scores of the overlapping candidates are the same for those two subjects. This process is continued for all possible pairs of subjects. Since subsequent changes to distributions occure after parity has been achieved for pairs of subjects adjusted at an earlier step, the entire process is repeated. This iteritive process continues until differences in the parity of esteem for all pairs of subjects converges to a minimum stable state.

The concept of "parity of esteem" refers to the notion that all subjects are as important as one another and of equal educational value in relation to their aims and objectives. Thus, the scores are awarded to students on the basis of ability of the students taking the subject. It follows that, when a student chooses between alternative subjects, he should be faced with the prospect of obtaining higher scores if he chooses subjects which suit his interests and his abilities than he would if he chose other subjects. That is, it is intended that there be no advantage of disadvantage in respect of scores obtained on any subject on the basis of the criterion used in assigning the distribution of scores to that subject. In addition, a student not be advantaged or disadvantaged in respect of scores by entering into competition a majority of less talented or more talented students in that subject.

We should also consider the situation in which a large group of students choose to study two particular subjects i and j. On the average, the effect of the students who have chosen i because they have particular interest and abilities should cancel the effects of those who have chosen j for these reasons. Thus, it is reasonable to expect that the distribution of scores for the students who have studied both subjects should be the same. Let us now consider the position of a student who has studied subject i but not j. His score should not affect the relationship between the distribution for i and j for the overlapping candidature. His score should be determined by comparing his achievement in i in relation to the achievement of other students who studied i. Thus, to achieve parity of esteem when two subjects are taken by groups of students, which are not exactly the same for both groups, the total distribution of scores between the subjects would be different, even though the distributions for the overlapping candidates would be the same.

It is contended that the only condition under which scores from different subjects can be compared in a meaningful way is when the criterion of parity of esteem has been applied to the distribution of those subjects. If the principle is accepted, it provides a necessary and sufficient condition which must be applied to achievement scores in specific subjects before a global aggregate achievement measure can be calculated.

Situations where Parity of Esteem is Inappropriate

In most cases when students select to study a pair of subjects, it is reasonable to assume that on

average, the scores on the two subjects should not be markedly different. However, there are two conditions under which we might expect a systematical difference between mean scores. They are:

1. When a pair of subjects contains one compulsory subject, and one which the students have elected to study from a variety of options, it is reasonable to assume that students have elected an option in an area related to their talents. Thus, on average, we would expect that students would score higher mean scores on these subjects than they would on the compulsory subjects. Thus, the null difference is not appropriate as the criterion of the parity of esteem measure. To estimate the appropriate difference, it would be necessary to know how the students who elected not to study the elective subject would have performed if they had in fact studied the elective subject.

2. The null difference is not appropriate when the pair of subjects includes one subject which has been chosen mostly by students who have a specific ability in this subject, due to some previous experience. An example of this is the group of students studying the foreign languages. For some foreign languages, the student population contains a high proportion of native speakers of the language. In these cases, we would expect these students to score higher mean scores in these subjects. It may be possible to estimate an appropriate difference to represent a parity of esteem by considering the scores of the non-native speakers only.

3. Other conditions under which the null difference may not be appropriate are:

   . When students are studying subjects which have low social status; and
   . When students are studying subjects which they believe will not count towards their final global achievement measure.

   These conditions are not explored further in this paper.

Adequacy of Measures

In the real world, it is unlikely than any assessment system would meet the criterion of parity of esteem between all pairs of subjects. In cases where parity is not achieved, two important questions need to be considered:

1. What is the heirarchy or order of magnitude of the differences? and
2. Is the difference statistically significant, and, if so is the magnitude of the discrepancy sufficiently large to be of concern?

1. Heirarchy of Subjects

Before these questions can be answered, it is necessary to establish criteria on which to base our judgement. The criterion developed for the order of magnitude is derived from the concept of parity of esteem. To obtain the heirarchy of subjects, it is necessary to calculate the mean difference between scores on each pair of subjects for all students. The heirarchy from the most advantaged subject to the most disadvantaged subject is the rank order of the mean differences. It is difficult to generate this heirarchy in a single step. The steps necessary to generate the heirarchy are outlined briefly below:

Suppose a student studies s subjects out of a total of S subjects available, Then the number of pairs of subject combinations for this student = ${}^{s}C_{2} = s(s-1) \div 2$

Let two of these subjects be i and j with the student scoring X_i and X_j respectively in these subjects.

Let A_{ij} be the advantage of subject i over subject j

$$\text{then } A_{ij} = X_i - X_j = -A_{ji}$$

If we have a square matrix of dimension S x S, then the (i,j) element can be incremented by the values of A_{ij} and the (j,i) element incremented by the value of A_{ji} $(= -A_{ij})$. The

corresponding elements of a similar matrix are incremented by unity to obtain a matrix of the number of students studying each pair of subjects. Thus, $n_{ij} = n_{ji}$ = no. of students studying both subjects i and j. The elements of the matrices are incremented for each pair of subjects for each student in the population. Thus, if there are N students, and each student takes s_k subjects, the total number of subject pairs, P is given by:

$$P = \sum_{K=1}^{N} (s_k (s_k - 1) \div 2)$$

(i) The non-parametric method

The matrix of differences will contain both positive and negative elements. For each subject i, the number of positive elements is the number of subjects for which subject i is advantaged over subject j. Similarly, negative elements represent disadvantage. A heirarchy could be obtained by ranking the subjects in order of the difference between the number of positive and negative elements. Differences which could be due to chance are omitted. A statistical test is applied assuming that pairs represent a sample taken from a theoretically infinite population. The test used in this analysis is the t-test of statistical difference between matched pairs. This method produced some confusing results. Three causes were identified:

- Since the number of cases for pairs of subjects n_{ij} varied markedly for different subject combinations, values of A_{ij} required to produce a statistically significant result also varied markedly.
- Some subjects had very few significant differences, while for others nearly all the differences were significant. This problem was also related to the varying numbers of cases (n_{ij}).
- It appears that there is an interactive effect among variables, and not a simple heirarchy as proposed. For example, there are several circular heirarchies of the form:

$$X_i > X_j;\ X_j > X_k;\ X_k > X_i.$$

It appears at first glance as though these inequalities are logically inconsistent. However, when one considers that the candidature of the groups n_{ij}, n_{jk} and n_{ik} are different, it can be seen that the inequalities can be consistent.

(ii) The Parametric Method

To overcome the problems encountered using the non-parametric method of calculating the heirarchy, a parametric method was developed. This provided a single mean value of advantage for each subject. This measure is the mean difference between the score of the subject i and the score on all other subjects for all students. Mathematically

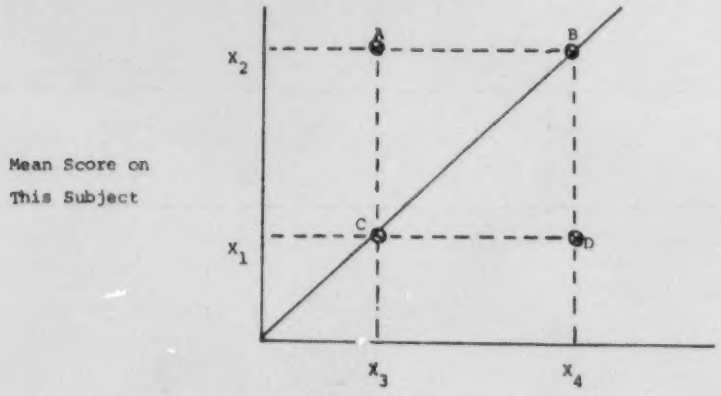
$$\overline{A_i} = \frac{\sum_{J=1}^{S} A_{ij}}{\sum_{J=1}^{S} n_{ij}} \quad (\text{iff } X_i \neq 0 \wedge X_j \neq 0)$$

The heirarchy of advantage is determined by listing the mean differences in decending order. The most advantaged subjects are at the top and the most disadvantaged subjects are at the bottom.

The notion of advantage can be illustrated using four hypothetical subjects A, B, C, and D. Figure 1 shows a plot of the mean score on each of these subjects plotted against

the mean scores of those students who studied these subjects on their other subjects.

Figure 1: Mean Score on Subject by Mean Score on all Other Subjects.



It can be seen from figure 1 that although subjects A and B have the same mean scores, they are being treated differently. The students in subject A are scoring higher scores in this subject than their average score in their average score in their other subjects. Thus subject A is advantaged.

Although students in subject B obtained higher scores than the students in subject C, there is no advantage, since they also scored higher scores in their other subjects. The criterion of parity of esteem has been met for subjects B and C. Using the same argument, subject D is disadvantaged.

2. Significance of Differences Between Subjects

The calculation of an heirarical order of subjects raises two important questions:

(i) is the magnitude of the differences between subject means statistically significant, and, if so,

(ii) Is the magnitude of the difference sufficiently large to be of practical importance.

(i) Statistical Significance

The hypothesis underlying the calculation of the difference matrix was that although individuals would have different scores on various subjects, these differences should cancel out when added across pairs of subjects. That is, the differences should be distributed at random both within and between subject pairs. The Fisher F statistic, uses the ratio of the variance between groups to the variance within groups to establish whether the differences observed could be due to random fluctuations in the data. If the probability of the observed fluctuations being due to chance is too low, we reject the null hypothesis and accept the alternative hypothesis that the difference matrix is not a null matrix and that parity of esteem between subjects does not hold for the set of data.

(ii) Magnitude of Differences

Having established that the differences are statistically significant, it is necessary to determine whether the magnitude of the relative advantage and disadvantage of the various subjects is of practical importance. This decision is necessarily subjective. However, the advantage can be expressed in standard deviation units or units on the TE Score scale. This second difference would be of great interest to teachers and students.

Comparison of Heirarchies

If two or more methods of producing subject scores are developed, it is possible to compare the

degree of fit of the methods, providing the data is available for the same students and for the same subject combinations. The method for which the F ratio is least is the method which approximates best fit to the criterion of parity of esteem. It is not necessary that the scores for the various methods should use the same scale, since F is a ratio and is independent of the scale used. Any number of alternative scaling methods may be compared by calculating the appropriate values of F. It should be noted, however, that this criterion considers only comparisons between subjects for each student. It does not take account of any differences due to differential treatment of various subgroups within schools. Differences due to variables such as sex, socioeconomic background, racial origin or religion do not contribute to the differences in scores discussed in this paper. In addition, the analysis does not include the effects of variations between schools. Relevant variables include geographical location, cultural and other difficulties in school characteristics in addition to the within-school variables listed above. Since the criterion of parity of esteem focuses on each student individually, it is not possible to account for differences between individuals.

Thus, this technique for determining the adequacy of distributions of assessment scores does not measure the accuracy or appropriateness of the distributions of scores or the rank order of students within subjects in schools. In addition, it is independent of the appropriateness of the techniques used to achieve comparability of scores between schools. Other techniques will have to be devised to measure these effects. One alternative has been explored by Lamont and McBryde (1979). Others have been suggested by McBryde and Lamont (in press).

Data

The data were provided from the official Board files for all students who were awarded a Tertiary Entrance (T.E.) Score in 1979. Data for the whole population were available, and were used in the analysis. Since the major calculations were performed by computer, no advantage would have been achieved by sampling the data. The variables analysed in this study are:

1. Moderated School Assessment (MSA)

   This is the sum of the ratings awarded to the students over the four semesters in Years 11 and 12. Since the rating for each semester lies in the range 1 to 7, the values of MSA lie in the range 4 to 28. Allowance has been made for students who have studied fewer than 4 semester units in any subject. These scores are comparable between schools, but cannot be compared between subjects.

2. Special School Assessment (SSA)

   This score is assigned by the school for each subject studied by each student. Its value lies in the range 1 to 99. These scores reflect the relative achievement of students within each subject within each school. Many schools scale these scores to a mean of 65 and a standard deviation of 15 before submitting them to the Board. It is not intended that these scores be comparable between subjects or between schools.

3. Adjusted Subject Score (ASS)

   This is the score obtained in each subject in each school by adjusting the SSA to the ASAT mean for the group, and a standard deviation of 12. The purpose of this scaling is to attempt to produce scores which are comparable between schools and also between subjects.

Results

At the time of writing this report, the analyses have just been completed and a verbal report has been given to the Research Committee of the Board. The interpretations are regarded as tentative. Because of the sensitive nature of the findings, particularly the heirarchy of esteem of subjects and the relative goodness of fit of the alternatives tested, the results have been classified as confidential at this stage. However, approval has been given for the results to be made available at the conference.

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UNEMPLOYMENT AND RECURRENT EDUCATION:

AN ECONOMIC PERSPECTIVE

by

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Introduction

This paper discusses some of the implications of high levels of youth and adult employment for the economic arguments advanced in the recurrent education (RE) debate. The general objective is to demonstrate that despite its limitations economic analysis can make a positive contribution to the discussion of RE. The specific objective is to incorporate in the economic analysis of RE explicit treatment of the unemployment variable.

Since the late sixties when the term RE started to be employed within OECD circles to describe an alternative means of organizing the provision of formal education, the RE debate has ranged far and wide as illustrated by the recent review in Schuller and Megarry (1979). The scope of the debate upon the related concepts of lifelong education, permanent education and their variants has been equally impressive. While economists have not been prominent within the RE debate, economic considerations have been advanced by both the advocates and opponents of RE to support their respective positions. The lack of involvement of economists in the RE debate can probably be attributed to two main factors. First, economists (much to the relief of many educators) have until relatively recently shown little interest in the education sector; in such circumstances it is not surprising that a concept such as RE, which is still novel to many educators, has attracted little sustained interest from economists. Secondly, and perhaps more importantly, it is extremely difficult to conduct analyses of a concept yet to be fully implemented and whose meaning appears to be both imprecise and constantly shifting; the description of RE as having the qualities of a chameleon (Blaug and Mace, 1977) seems particularly apt.

This paper argues however that amongst the variety of definitions of RE (recently reviewed in Kallen, 1979) a common core of meaning can be determined. In essence this common core proposes a shift in emphasis away from the provision of education in an uninterrupted block which is normally completed by the time one reaches the late teens or early twenties. Rather the RE advocates argue that for a number of educational, social, political and economic reasons (elaborated in OECD/CERI, 1973) a more appropriate form of educational provision is one which redistributes education over the life of the individual in a recurring manner. Under such a system, education would be interspersed with activities such as work, leisure and retirement rather than essentially preceding these activities as is currently the case.

Conceptually the notion of redistributing educational provision in a recurring manner can be viewed as comprising two related elements, namely the deferral of some elements of post-compulsory education which would normally be undertaken in an

uninterrupted manner before entering the labour force or other post-education activities, and secondly, the interruption of these activities to return to the education sector at different periods throughout one's lifetime. The first element may be termed the deferral strand of RE and the latter element the return strand; the implications of unemployment for the economics of each strand will be considered in turn. In this the paper follows the approach, though not the terminology, of Stoikov (1975).

Unemployment and the Deferment of Education

Economists have in general been critical of proposals to encourage young people to defer elements of their post-compulsory education for lengthy periods. The essence of these criticisms has been well summarized by Gannicott:

> The fundamental reasons why schemes of recurrent education cannot be justified on economic grounds is that earnings foregone by adults are so much higher than by young people, while at the same time the period over which they can be recouped is so much shorter. (Gannicott, 1972:20).

This paper argues that in the Australian context the economic case against the lengthy deferral of post-compulsory education is strengthened by two major features of the Australian labour markets for young people. First, as Table 1 illustrates, unemployment rates are absolutely high and inversely correlated with age. Under such conditions a decision to defer an element of post-compulsory education is a decision to enter a labour market which discriminates against the young, and in particular against the very young. Simply remaining in the 'aging vat' of school appears to significantly improve one's chances of gaining employment.[1]

Table 1 Measured Unemployment Rates by Age: Australia, August 1979.

Age (years)	15	16	17	18	19	20	21	22	23	24	25-34
Unemployment rate (per cent)	27.2	26.3	18.8	14.3	12.7	10.4	9.6	8.9	6.6	5.1	4.6

Source: ABS, Unemployment, Underemployment and Related Statistics, Tables 8 and 20. Cat. No. 6236.0

The second feature of the Australian labour market which reinforces the economic case against the lengthy deferral of post-compulsory education is the structure of youth wage rates. Table 2 provides the award wage rates prevailing in November 1979 for a number of occupations, which between them provide a large proportion of the employment opportunities for young people.[2] Within each occupation the common pattern is for the award wage payable to a 16-year-old to be approximately fifty per cent of the adult award wage, that payable to a 17-year-old to be about sixty per cent of the adult award, around seventy per cent for an 18-year-old and so on, until the adult award wage is reached at 21 years of age. Simply remaining in school, no matter what other advantages it may bring, enables the young person to enter the job market at a greater age, and in the Australian labour market this means at a higher wage.

The preceding discussion presumes that remaining in school does facilitate entry to a higher level occupation. After all, if following a period of post-compulsory education one was only able to obtain the same type of job as one could have acquired upon leaving school at age 15, there would be no obvious economic advantage in remaining

in the education system. The little Australian evidence that is available (recently reviewed in Blandy, et al., 1979:140-143) suggests that in the post-secondary education sector at least the acquisition of higher levels of education is associated with obtaining higher income occupations. The proportion of these economic returns attributable to the education itself and not to factors such as ability, motivation, home background and so on, is much more difficult to determine. In the area of interest to this paper, namely the upper-secondary level, there is no direct evidence on the likely economic return on an extra year of post-compulsory schooling. The likely order of the return can however be imputed on the basis of the wage rates applying in the sorts of occupations which are generally only open to school leavers who have attained a particular level of education. Thus, for example, if it is known that it is necessary to complete Year 11 of secondary school to enter a clerical career,[3] the return on the investment in attending Year 11 can be estimated by comparing the income to be earned as a clerk with the income obtainable from a career as (say) an unskilled metal worker or as a sales assistant. This is the approach that will be adopted in the following analysis.

Table 2 Award Wages, by Age: Victoria, November 1979

Occupation	Age (years)					
	16	17	18	19	20	21
Unskilled metal worker	$3120	$3812	$4506	$5442	$6445	$6932
Shop assistant	4111	4521	5548	6578	7400	8044
Bank clerk	4193	5123	5995	5890	7769	8647
General clerk	4516	5418	6323	7225	8130	9032

Source: Department of Employment and Youth Affairs, private communication.

It should be emphasized that the discussion which follows does not claim to be based upon a systematic study of how young people fare in the labour market. Neither does it pretend that the example of an education deferment that is utilized is a particularly realistic one. Rather it is an attempt to illustrate one impact of youth unemployment upon the deferral strand of RE. This will be done by comparing the likely net gains from various deferment options under conditions of zero unemployment with those same options under conditions of unemployment rates similar to those currently existing. In each case the 'net gain' of education deferral is to be examined from a social perspective and is obtained by subtracting the costs of each deferrment option from the benefits of each option. Under this approach the social benefit of each option is assumed to be represented by the income earned under that option.[4] The social costs are assumed to comprise both the direct cost of providing the education for the individual while he remains in school and the income foregone whilst the individual remains in school beyond the minimum school-leaving age.

Where the social benefits of deferral outweigh the social costs of deferral there is a net gain to society through the allocation of additional resources to encourage deferral, at least up to the point where the relative gains from deferral equal the relative

gains available from other social investments. In other words, the question that is being asked is: to what extent should society encourage (or discourage) young people to defer elements of their post-compulsory education in the current economic climate?

The social benefits and costs of education deferment: a worked example

Assume that an individual aged 16 years at the completion of Year 10 wishes to pursue a career in clerical work, for which the preferred minimum educational qualification is completion of Year 11, and that he is considering postponement of Year 11 until any age up to 21 years. Assume further that the best employment alternative open to him if he leaves school before completing Year 11 is either unskilled metal work or work as a shop assistant. The decision facing the individual therefore is whether he should complete Year 11 immediately and thus enter the clerical profession at age 17, or whether he should delay completion of Year 11 (and thus entry to clerical employment) until a later period, and in the interim be employed as either an unskilled metal worker or as a shop assistant. Which decision is likely to generate the greatest social benefit?

The basic income data for the example is contained in Table 2. The likely income to be earned as a clerk at each age up to 21 years is assumed to be the mean of the award wages payable at each age in the 'Bank clerk' and 'General clerk' categories of that table. Since Year 11 of secondary school needs to be completed before the clerical profession can be entered, the anticipated stream of clerical earnings will be termed the imputed Year 11 age-earning profile. For those who do not complete Year 11 and who therefore are unable to enter the clerical profession, it is assumed that their anticipated earnings at each age are represented by the mean award wages of the 'Unskilled metal worker' and 'Shop assistant' categories in Table 2. The result of these calculations will be termed the imputed Year 10 age-earnings profile; both the imputed Year 10 and Year 11 age earnings profiles are shown in Table 3.

It should be re-emphasized that these data do not purport to necessarily represent the likely income streams facing an individual who has completed either Year 10 or Year 11 of secondary education and who is considering entering employment. Rather, in the absence of such data, they represent approximations based upon the data available, approximations which it is hoped are sufficiently credible to enable them to be employed to usefully illustrate the arguments to be advanced.

To return to the example, the 16-year-old who has just completed Year 10 has a choice between immediately commencing employment and earning $3616 in his first year, $4167 in his second year and so on, until he decides to return to complete Year 11, or undertaking Year 11 immediately. In the latter case, the opportunity cost of his Year 11 studies at age 16 is the income he could have earned had he not been at school, which in this instance would be $3616. This opportunity cost however needs to be balanced against two main factors. First, once Year 11 is completed, a higher income may be anticipated. Secondly, the longer Year 11 is deferred, the higher is the opportunity cost of returning to school.

At this stage the decision to defer Year 11 looks relatively costly. However from the social perspective a significant gain from deferral is that the direct costs of providing

Table 3 Imputed Age-earnings Profiles up to 21 years of Age: Years 10 and 11 of Education, Victoria, November 1979

(unadjusted for unemployment)

	Age (years)					
	16	17	18	19	20	21
Year 10	$3616	$4167	$5027	$6010	$6923	$7488
Year 11	4355	5271	6159	7058	7950	8840

the Year 11 education, which in this case are estimated to be $1600 per student,[5] may be postponed and the expenditure which would have been incurred in 1979 for an additional Year 11 student could be invested. This benefit of deferment needs to be weighed against the costs of deferment.

Because each deferment option involves weighing the relative costs and benefits of undertaking an extra year of education at different ages, which consequently gives rise to different earnings streams, it is necessary to convert the options to a comparable basis. A common method is to convert future costs and benefits to a present-day value by means of an appropriate discount rate. Hence the present value (PV) of earnings n years from the present (Yn) may be represented as:

$$Pv = \frac{Yn}{(1+i)^n}$$

where i = the discount rate.

A similar calculation would reveal the present value of a cost incurred in a future period. The discounting procedure is used to calculate the present value of the excess of the earnings stream associated with each deferment option over the direct and opportunity costs of each option; the results are shown in Table 4.

As Table 4 demonstrates, on the assumptions employed, at each discount rate, the longer one defers completion of Year 11, the greater the relative cost of deferral. This result arises because the wage structure for young people is relatively steeply tiered within occupations and is assumed to be differentiated across occupations with different educational requirements. Thus even though there is a social gain in deferring the direct costs of education for as long as possible, this gain is more than counterbalanced by the rising cost of foregone earnings and the smaller time available in which to earn the higher salary associated with the Year 11 occupation. This result confirms the pessimism of Gannicott (1972) and Stoikov (1975) about the economic value of postponing education for lengthy periods.

It is important however that the results reported in Table 4 be kept in perspective. The calculations involve a five-year decision-making framework; when the results are placed against the life-time additional earnings generally associated with further education, the relative loss associated with deferral of Year 11 until age 20 years is relatively minor. Furthermore it is entirely possible that the period of deferral serves to raise interest and motivation about education, and provides experience which is directly applicable to the learning situation. The net result may be that the length

Table 4 Deferral of Year 11
Excess of the present value of income over the present value of education costs
Discount rate of 10 per cent
(unadjusted for unemployment)

	Age Year 11 deferred to (in years)				
	16	17	18	19	20
Excess of income over education costs ($)	15418	14215	12679	11282	10240

of education and hence the foregone earnings and direct costs associated with education are able to be reduced and any income differential associated with education acquired earlier, thereby diluting the economic argument against deferral.

Where the period of deferral is likely to be of greatest importance is for those young people who have no clear knowledge of either the type of work involved in different occupations or of their own career preferences. Deferral of specialized education for a comparatively short period can over the long run prove a relatively profitable investment as the costs of making the wrong career choice may be reduced. In general however, the longer the period of deferral of education, the greater the relative costs involved. The next section examines the extent to which this conclusion is affected by unemployment rates of the order currently occurring in Australia.

The impact of unemployment upon the economics of education deferral

Widespread unemployment can have two major effects upon education investment decisions. First, the opportunity costs of participation in education are lowered in depressed labour markets; other things being equal this should raise the relative return on education investments. Secondly however, other things generally are not equal in depressed labour markets; in particular the extra income which may be anticipated as a consequence of acquiring a higher level of education needs to be weighed against the difficulties of gaining any employment in such markets. On balance, how do these two factors combine to affect the relative return from different education deferment decisions?

To incorporate unemployment into the model developed in the preceding section, the unemployment rate for a particular age group is assumed to represent the probability of an individual from that age group being unemployed. Further, it is postulated that the expected age-earnings profile of a person with a given level of education needs to be adjusted downwards by the probability of that person being unemployed. This procedure follows the suggestion of Gannicott (1973) and accords with the methodology used in a number of the rate-of-return studies examined in Psacharopoulos (1973). Ideally one would like data which disaggregated age-specific unemployment rates according to the level of education of individuals. In the absence of such data it is assumed that the unemployment rates reported in Table 1 apply equally to Year 10 and Year 11 school-leavers. It should be noted however that to the extent that a Year 11 school-leaver has a lower probability of unemployment than a Year 10 school-leaver of the same age, this assumption understates the income benefits of Year 11 education and thus understates the costs associated with deferral of Year 11. The results of the adjustments for unemploy-

ment to the imputed age-earnings profiles of Table 3 are shown below in Table 5.

Table 5 Imputed Age-earnings Profiles up to 21 Years of Age
Years 10 and 11 of Education, Victoria, November 1979

(adjusted for unemployment)

	Age (years)					
	16	17	18	19	20	21
Year 10	$2665	$3384	$4308	$5247	$6203	$6769
Year 11	3210	4280	5278	6162	7123	7991

The effect of the adjustment for unemployment is to significantly depress the anticipated earnings of the very young relative to those of other age groups since it is amongst the very young that unemployment rates are highest. The data in Table 5 are now utilised in a similar manner to that described earlier to calculate the relative gains and losses from various education deferment options when allowance is made for unemployment; the results of these calculations are contained in Table 6.

Table 6 Deferral of Year 11
Excess of the present value of income over the present value of education costs
Discount rate of 10 per cent
(adjusted for unemployment)

	Age Year 11 deferred to (in years)				
	16	17	18	19	20
Excess of income over education costs ($)	13500	12008	10371	9032	7901

While Table 6 exhibits similar general characteristics to Table 4 the clear effects of the adjustment for unemployment are evident. First, unemployment reduces the present value of each deferment option quite significantly. This is to be expected since while unemployment reduces the foregone earnings associated with the year in education, it also reduces the likely income to be earned during the other four years in the period under review. Secondly, the inverse relation between unemployment and age increases the relative loss associated with deferral. When adjustment is made for unemployment, the proportion of the excess of income over social costs which is lost by deferring Year 11 from age 16 to age 20 rises from 42.5% to 49.7% at the 5% discount rate, from 33.6% to 41.5% at the 10% discount rate and almost doubles from 12.6% to 22.4% at the 20% discount rate. The major reason for this is that the relatively high unemployment rate for 16 year olds reduces the foregone earnings associated with Year 11 education at age 16 by a greater proportion than does unemployment at any other age and similarly the expected earnings while working at age 16 are reduced by a greater proportion by unemployment than are the expected earnings at any other age. Furthermore as noted earlier if, as is likely, Year 11 school-leavers have a higher probability of being employed than Year 10 school-leavers of the same age, the relative loss associated with deferral of Year 11 would be even greater.

If it was expected that unemployment rates would worsen in the future there could be some justification in deferring education in expectation of high unemployment causing a

significant fall in the foregone earnings associated with education at a later age. While it is true that such expectations if realised do reduce the costs of deferral, the anticipated levels of unemployment would need to be considerable to completely outweigh the costs of deferral. In the model employed here for example, even if the unemployment rate for 20 year olds was expected to reach 100% in four years time so that the opportunity cost of study at that time would be zero, this would still be insufficient to completely match the returns arising from proceeding directly to Year 11 at age 16.

It should be noted that the converse also applies: if it is anticipated that unemployment rates are likely to fall, the economic argument against deferral is even stronger.

Unemployment and the Return of Adults to Education

The RE literature came into prominence during the late sixties and early seventies, a period of relative economic prosperity in much of the industrialised world, including Australia. In part as a response to the worsening economic environment the advocacy of RE has shifted emphasis from changing the nature of educational provision for the young and focussed instead upon encouraging adults to return to the education system (e.g. Schuller 1978, and Gould, 1978). The potential of RE for improving educational provision for adults has been explicit since the earliest advocacy of RE, and there is a growing realisation that high levels of unemployment may provide the opportunity to expand educational provision for adults in a relatively inexpensive manner. On the one hand for those adults who are unemployed the opportunity costs of enrolment in education programs may be negligible, while for those adults who are currently employed and who wish to return to the education sector, the existence of large numbers of unemployed may mean that the costs of educational leave could be reduced by making use of the services of the unemployed. Each factor will now be discussed in turn.

Unemployed adults and recurrent education programs

Where adults are unemployed the opportunity costs of their participation in education programs may be very low thereby helping to overcome one of the principal economic objections to the provision of education programs for adults rather than for the young. How large is the foregone earnings element of the costs of education? In his extensive review of rates-of-return studies, Psacharopoulos (1973:14) found that in the industrialised nations on average 53 per cent of the total costs of higher education comprised foregone earnings. The most recent Australian study in this area (Gleeson, 1977) found that in 1975 the marginal cost to a CAE of enrolling an additional full-time student averaged $2538 (in December 1975 prices) and that the average income foregone at that time by a full-time student aged 20 years was $5685 (ibid: 91 and 111 respectively). This indicates that of the total costs of educating a full-time higher education student at that time, about 70 per cent comprised foregone earnings. Since such investments were presumably profitable, education programs for unemployed adults whose opportunity costs of education participation would be low could be very economically attractive.

To test the sensitivity of the returns from education investments to low opportunity costs a model adapted by Stoikov (1975:18) will be employed. In this model the return on

an education investment are dependent upon the income differential associated with the education (Y), the number of years of post-graduation working life (P), the length of the education (n), the direct costs of providing the education (Kd), the foregone earnings as a result of participation in the education (Kf), and the discount rate (i). If it is assumed that Y is constant and = $1000, P = 39 (i.e. we have a 20 year old who expects to retire at age sixty), n = 1, i = 1 and Kd and Kf correspond to the Gleeson estimates, the social rate of return in the education of the 20 year old is of the order of 10 per cent. If the course was undertaken by an unemployed adult aged 40 years (i.e. whose foregone income during the course was zero and who can expect a post-graduation working life of 19 years), and the same values held for the other variables, it can be demonstrated that the social rate of return on this investment would be of the order of 30 per cent. In this simple model, removing the foregone earnings element significantly increases the economic attractiveness of the education investment.

Of course the objection may be made that in the case of an unemployed adult one cannot expect the value of the other variables in the Stoikov expression to be equivalent to those for a young person: either the adult will take longer to complete a given course and/or upon graduation he will be less attractive to an employer (i.e. the income differential for the adult will be less than that for the young person). In either case, the investment in the adult becomes less economically attractive. While this is true, it can nevertheless be demonstrated that for (say) a 40 year old unemployed adult it would be necessary for the time taken by him to complete the course to be more than double that of a young person or for his income differential upon graduation to be less than one-half that of the young person before the social return on the investment in his education to fall below that of the young person.

The objection to this analysis can still be made that if it is relatively profitable to provide an unemployed adult with a further education opportunity, it must be even more profitable to supply an unemployed young person with an equivalent opportunity since the young person would have a longer working life over which to enjoy the benefits of the course. Two points can be made in response to this objection. First, in a world of rapid technological change in which the skills acquired in any course are likely to eventually become obsolete, so long as the anticipated useful life of a skill is less than the remaining working life of an individual the age of the individual is of itself an insufficient justification for not investing in the education of that individual (Simkins, 1976). Secondly even where the return on an investment in the education of an adult falls below that of a young person, the difference between the two returns may well be a price society is prepared to pay if the adult participation in further education programs is considered to be a more equitable use of resources.

Thus far the implicit assumption has been that the unemployment is caused by a lack of the skills currently in demand in the labour market and that by completion of an appropriate course, employment may be resumed. Where however unemployment is the result of other factors such as a generally depressed economy, it needs to be recognised that RE programs of themselves will not necessarily improve the employment prospects of the

participants in them, or if they do, the acquisition of employment could be at the expense of less skilled individuals. Under such conditions the justification for RE programs would have to be on the basis of factors other than employment generation. In conclusion, while it may be tempting to justify RE programs on the grounds that the increased expenditure associated with such programs is likely of itself to be employment generating, this justification would need to be balanced against other perhaps more direct means of stimulating employment.

Education for adults, jobs for the young?

The title of this section is taken from the scheme proposed by Gould (1978) and echoes sentiments expressed in a number of sources including Schuller and Hagarry (1979). The essence of these proposals is that the provision of educational leave for those in employment increases job opportunities for others, including the unemployed, since those on leave need to be replaced during their absence from the workplace. The process of drawing the unemployed into positions left vacant by those on educational leave has been dubbed the 'vacuum effect'. Aside from the obvious equity implications of such proposals the issue of concern here is the extent to which such schemes would allow the involvement of adults in RE programs under conditions where the opportunity cost of their foregone production while absent from the workplace would be minimized.

It is probable that there would be an inverse relationship between the degree of skill required by an individual for a job and the ease of replacing that individual whilst on educational leave. This inverse relationship may enable the equity objectives of RE to be achieved in a relatively economical manner, as the least skilled are likely to be in relatively low income employment and since the absence of the least skilled whilst on educational leave is likely to be the most easily overcome by the production provided by replacement workers, a policy of providing educational leave opportunities for low income employees could be implemented at relatively low opportunity costs. Conclusions about the economic attractiveness of educational programs for employed adults under these conditions would be similar to those for the educational programs for unemployed adults outlined in the previous section. This conclusion is based upon educational leave programs described in only the most general of terms. The actual level of production foregone through the operation of an educational leave scheme will depend upon specific characteristics of the scheme, the individual employees and replacement workers involved, and the nature of the production process itself. In particular a factor which could limit the savings in foregone production that is offered by the use of replacement workers is the extent of training needed to enable their productivity to match the performance of those on leave.

Conclusions

This brief examination of one aspect of the RE debate has been limited by the lack of clear, operational RE models upon which to base analysis and the complexity of the factors surrounding the employment issue. Consequently it has been necessary to utilise a very general model of RE, simple models of the education-employment process, and data of the most rudimentary kind. Within these limits however two qualified conclusions can

be drawn. First, the current structure of youth unemployment and labour markets significantly strengthen the economic arguments against the deferral strand of RE. Secondly, high levels of unemployment mean that many of the economic arguments against providing educational programs for adults are considerably weakened.

Notes

1. This is confirmed by the finding of Williams et al (1980:95) that other things equal, each additional year of schooling decreases both the time taken to find a job after leaving school and the total length of unemployment.

2. In 1978 of the 555,400 people aged from 15 to 19 years who were not at secondary school and who were employed, 24.9% were engaged in clerical employment, 14.2% in sales and a further 39.2% in the tradesman/production process worker/labourer employment group.
Source: ABS, Employment Status of Teenagers August 1978. Cat. no. 6234.0.

3. Careers Guide for Victoria 1978-79, (Canberra: AGPS, 1978.)

4. The use of earnings as an index the value to society of an individual's production involves a number of assumptions about the extent of labour market competition and the existence of social benefits and costs other than earnings and foregone income. The extent to which these assumptions are justified will vary according to circumstances; Selby-Smith (1975: 102-106) provides a good discussion to the issues involved. For the purposes of this analysis however it may be assumed that the objections outlined by Selby-Smith apply with equal force to each of the options under consideration and as such should not affect the relative ordering of the measured benefits and costs of each option.

5. Estimated on the basis of the average recurrent expenditure per secondary school student published in Australian Students and Their Schools (Canberra: Schools Commission, 1979).

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AN ECONOMIC FRAMEWORK FOR EXPLAINING TEENAGE UNEMPLOYMENT

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I. Introduction

The following section presents several dimensions of teenage unemployment in an attempt to highlight the overall extent of an important social problem and to indicate which dimensions should be emphasised. Section III suggests a standard demand-supply framework as a means of co-ordinating explanations of teenage employment and unemployment behaviour. Section IV focuses on the supply aspects of the teenage unemployment problem. In particular a review is made of existing empirical evidence concerning the role of unemployment benefits, wage rates, cyclical effects, job market information and demographic influences. Section V reviews demand aspects of the teenage unemployment problem, notably wage rates, cyclical effects and labour quality (including education) effects. Whereas Sections IV and V focus on explaining the sudden rise in teenage unemployment since 1974, Section VI concentrates on the steady upward trend in the rate of teenage unemployment over the preceding 1947-1974 period. The most cited cause of this trend, the baby boom aftermath, is rejected here. Section VII concludes with a number of suggestions for future research.

II. Dimensions of the Teenage Unemployment Problem

Table 1 presents ABS data on recent movements in unemployment rates by age and sex. During the 1960s and early 1970s, the teenage unemployment rate averaged about four per cent, whereas in the second half of the 1970s and early 1980s, it has averaged more than 15 per cent. At certain times of the year, such as January and February, the unemployment rate temporarily shoots past the 20 per cent figure as school-leavers stream into the market. Yet even after many of these new arrivals have been absorbed, the rate rarely falls below 15 per cent. The current teenage unemployment problem is both severe and long-lasting.

Table 1: ABS Unemployment Rates by Age and Sex, 1966-1979 (August)

Year	Male 15 - 19	Male 35 - 44	Female 15 - 19	Female 35 - 44
1966	2.5	0.9	4.0	2.5
1967	3.1	0.9	3.6	2.7
1968	2.9	0.7	3.9	2.5
1969	2.3	0.8	3.6	2.5
1970	2.9	0.6	3.6	2.8
1971	3.2	0.9	4.3	2.5
1972	5.6	1.3	5.9	3.1
1973	4.6	0.9	4.9	3.2
1974	5.0	1.3	6.7	3.4
1975	10.8	2.3	15.1	4.5
1976	12.7	2.3	15.8	4.0
1977	15.8	2.9	20.3	4.5
1978	16.5	3.3	17.2	4.2
1979	14.7	2.4	20.4	4.2

Expressed as absolute figures, the severity of the teenage unemployment problem is obvious. However, difficulties arise when one seeks a comparative measure; that is, teenage unemployment relative to adult unemployment. This is of special interest since the debate in this area is premised on the belief that teenagers are disadvantaged more than other groups, notably adult males. If this were not the case, there would be no point examining influences peculiar to teenagers.

A variety of comparative measures are available (not counting different data sources for each), though as we shall see below, some are misleading. The four main measures are:

(i) the share of teenage unemployment in total unemployment;

(ii) the ratio of the teenage unemployment rate to the adult (or total) unemployment rate;

(iii) the absolute difference between the teenage unemployment rate and the adult (or total) unemployment rate, and

(iv) the ratio of the teenage employment to adult (or total) employment.

The first measure (see Shechan, 1977) indicates that there was a rapid rise in the relative share of teenage unemployment between 1954 and 1971, but it has stabilised since then. Taken literally, the measure suggests that there has been little deterioration in the relative unemployment position of teenagers in the past decade and it may have even improved slightly. However, a key problem with this method is that it is affected by variations in the shares of the groups in the labour force. For example, if all groups always had a healthy unemployment rate of one per cent and the labourforce proportion of one group doubled (for demographic reasons say) we would expect the relative unemployment share of that group to double. Such a change would not indicate any relative deterioration of any group in the labour market. Thus the first comparative measure is not reliable.

The second measure (ii) reveals an historical pattern similar to the first measure; the ratio of the teenage unemployment rate to the adult unemployment rate increased from 1954 to 1974 and then either falls (in the case of males) or stablises (in the case of females). The adult unemployment rate has risen from about one percentage point to four percentage points, while the teenage unemployment rate has risen from four percentage points to 15 percentage points. Taken literally this measure indicates little change in the relative position of teenagers. Yet such a conclusion defies commonsense; the teenage unemployment rate has risen 12 percentage points and the adult rate has gone up only three points. It is like comparing two towns twice massacred in a war. In the first raid one town lost 500 of its 1000 citizens and the other (also 1000 citizens) town lost six citizens. In the second raid the first town lost its remaining 500 citizens while the second town lost another eight citizens. The second measure (ii), modified to a war context, would regard the second town as having suffered the greater relative deterioration in the second raid! A number of economists (Corden 1977, Merrilees 1979 and Blandy 1979a) have attacked the second comparative unemployment measure.

The third measure (iii) appears to be a much more useful way of comparing the unemployment position of different groups within the labour market. The teenage unemployment rate has risen about 12 percentage points in the past six years, while the adult rate has risen about three points. The adult labour market has become very weak in recent years, but the teenage labour market has almost collapsed. Certainly different adjectives are required.

The fourth comparative measure (iv), i.e. the ratio of teenage employment to adult employment, has some similarity to the third measure, with both measures preferred to the first two. The fourth measure is particularly useful when focusing on demand aspects of the teenage unemployment problem and therefore is

somewhat narrower than the third measure. One appropriate option is to adjust the fourth measure for the average hours worked per week. Somewhat surprisingly, this last measure indicates only a slight deterioration since 1974; that is, the ratio of teenage employment relative to adult employment has fallen only slightly since 1974.

In summary, the more reliable and meaningful of our four measures, (iii) and (iv), do indicate a relative deterioration since 1974, but mainly in terms of unemployment rather than employment. Tentatively, this suggests that supply aspects may have been the more important cause of the recent upsurge in teenage unemployment, though this point is qualified somewhat in the following section.

III. A Demand-Supply Framework for Co-ordinating Explanations of Teenage Unemployment

In attempts to invoke an order of importance among competing explanations of teenage unemployment, increasing use is being made of multiple regression statistical techniques. In our context it may seem natural to use the teenage unemployment rate as the dependent variable and then specify a list of potential causal movements etc.) as the independent variables. This is in fact what Blandy (1979a) and McMahon and Ramasamy (1980) have done; Blandy uses the relative teenage unemployment rate (our third comparative measure) while McMahon and Ramasamy use the teenage unemployment rate as the dependent variable.

While this approach provides some idea of the order of importance of certain variables, ambiguity enters the explanation. Concentrating on Blandy's (1979a) results, is the business cycle influence a demand or supply effect? Blandy (as well as McMahon and Ramasamy) reports his results as if this influence were purely a demand effect. Yet the supply aspect, otherwise known as discouraged or encouraged effect, is entwined with the demand aspect. Thus the Blandy cyclical influence might simply reflect the possibility that adult workers become more discouraged (and therefore more likely to leave the workforce rather than join the unemployed) than teenagers when the job market weakerns. On the other hand, it might well be that the cyclical influence reflects demand aspects (unequal treatment in the dismissal of employees). We have no way of telling which of these quite disparate reasons is more important. Similarly, does the adverse effect of higher relative wages on teenage unemployment result from depressed labour demand (when wages are viewed as a cost) or stimulated labour supply (when wages are viewed as an income)? It is of interest to isolate these two aspects, not the least because quite different policy options are involved. If the supply aspect dominates, government policies to stimulate teenage demand via payroll tax reductions, for example, could be ineffective.

A more desirable, less ambiguous approach is to separately examine the demand and supply aspects of teenage labour, as well as the interaction (a possible market clearing process which presumably should emphasise relative wages) between such. Only a small amount of progress has been made in this direction, nearly all of it in the past couple of years.

As we shall see in the next two sections, a variety of methods can be employed for investigating both the demand and supply decisions relating to teenage labour. However, it is appropriate that we say something here about the relative importance of demand and supply in explaining the upsurge in teenage unemployment, especially in the year ending August 1975 (see Table 1). Gregory and Duncan (1979a, 1979b) have stressed the special role played by supply aspects. Demand aspects are seen to be fairly neutral in that the relative employment of teenagers changed little in the 1974/75 year, so the sudden rise in the gap between the teenage and adult unemployment rates is attributed to differential labour supply growth. The extraordinarily rapid teenage labourforce growth of six per cent for males in 1974/75 (and even higher for

teenage girls) appears to be a dominant factor in the alarming increase in teenage unemployment in that year.

This emphasis on labour supply by Gregory and Duncan, which was foreshadowed in Merrilees (1979), contrasts with the Sheehan (1977) and Sheehan-Stricker (1978) view, where nearly all of the current teenage unemployment is attributed to the recession. One difficulty with Sheehan's emphasis is its reliance on the second of our four Section II comparative unemployment-employment measures; a measure which we argued was less reliable than the third and fourth measures. At the same time, Sheehan (1977) argues that labour supply factors are not crucial in explaining recent (1974-78) teenage unemployment because although recent teenage labourforce growth was fairly high, it was less rapid than in the 1954-1966 period (when it was 3.6 per cent per annum). Superficially the Sheehan thesis is appealing because both the absolute and relative rise in teenage unemployment coincide with the arrival of the current recession in 1974. The Williams' Committee Report (1979) concurs with this view.

Blandy (1979b) and others raise several reasonable objections about the difficulty of apportioning unemployment into supply and demand components. Thus part of the reason why teenage labour supply is a problem in the late 1970s is simply due to the historically low level of teenage (and total) labour demand. The split between excess supply and deficient demand is arbitrary in the final analysis.

Nonetheless, despite the problem of untangling supply and demand aspects, there does seem to be some merit in the proposition that had aggregate demand growth been maintained during 1974/75, teenage unemployment would still have risen by about four percentage points. This assumes that aggregate demand would have been fairly neutral across age groups; an assumption which is consistent with actual employment behaviour. That is, there are doubts whether normal growth in aggregate demand could have absorbed the six per cent plus growth in the teenage labourforce in 1974/75. Presumably it would have taken several years of normal growth to carry out such absorption, so the special focus on labour supply seems justified. Exactly why did the teenage labourforce grow so rapidly during 1974/75 in particular and during 1974/78 in general? This takes us on to Section IV. Before doing so, however, we should be aware of a third aspect of the 1974/75 teenage unemployment explosion, namely the market clearing process. A sudden and large explosion of the labour supply of one group need not <u>per se</u> cause undue concern if there is an efficient market clearing process. On this basis, excess teenage supply would trigger off a fall in relative wages (and other adjustment instruments) and help eliminate the excess supply. There is some evidence that the market clearing process has not worked very well in the teenage labour market, so contributing to the unemployment problem in this market.

IV. Teenage Labour Supply

The decision to select an occupation is a complex one, about which academics only have a limited understanding. In this paper we want to look briefly at two aspects of this decision: what factors affect the timing of the decision to move from school to work and how much "shopping around" is necessary to facilitate the selection of a satisfactory job? Our discussion of the teenage labour supply will be based on these two aspects, which we treat in turn.

Economists have spent a fair amount of time and energy trying to model the teenager's decision to enter the workforce, as reflected in statistical studies of the labourforce participation rate. Using cross-sectional data, a wide variety of influences on this decision can be allowed for, such as ethnic background, family background, etc. I know of no Australian cross-sectional studies on teenage labourforce

participation, which may reflect the high research cost in this area. Instead, Australian research work in this area has mainly been time series analyses, which are only capable of handling a smaller number of influences compared to cross-sectional studies. Nevertheless, those influences which can be handled by time series supply models embrace several vital and controversial social issues. Does the dole affect work incentives? Are teenagers discouraged by the weak job market? These and other issues are dealt with in time series analyses.

An obvious strategy, therefore, is to set up an equation with teenage labourforce participation as the dependent variable and to specify a list of causal factors. One of the first attempts in this regard is the work by Gregory and Sheehan (1975) who include a small number of explanatory variables, including a cyclical indicator measured by the male unemployment rate. Their main result indicates that teenagers become discouraged when the labour market is depressed; that is, some tend to give up looking for work and drop out of the labourforce (they would not be counted as unemployed by the ABS survey).

The Gregory and Sheehan (1975) model seems to provide a reasonable explanation of teenage labourforce participation behaviour for the 1964-1972 period, but is plainly inadequate for predicting what happened in the 1974-1978 period. With the arrival of the recession in 1974, the Gregory-Sheehan (1975) model predicts a large decline in teenage participation rates, whereas in fact participation rates rose. A more detailed model is required to explain the post-1974 behaviour. Helping to fill this vacuum is the Gregory-Duncan (1979a) model, which adds further explanatory variables to those included in the Gregory-Sheehan study.

The Gregory-Duncan (1979a) model is very difficult to interpret. The discouraged worker effect is now measured via the employment-population variable rather than the unemployment rate and this adds a serious spurious correlation element to their results. It is like trying to "causally explain" the number of immigrants coming into Australia by the number of non-Asian immigrants. The employment-population ratio is not a useful way of explaining the labourforce (employment plus unemployment) - population ratio. To complicate the interpretation further, the employment-population explanatory variable is split into full-time and part-time components. Other interpretation difficulties result from the presence of interaction terms and the failure to state the units of measurement for the wage variables.

Gregory and Duncan (1979a) are aware of most of these problems, so we should present their findings in a tentative manner. As such, their results suggest that teenage labour supply is influenced by wage rates, though the relationship does not seem to be stable. Perhaps of greater interest is their finding that teenage labourforce participation rates are influenced by the level of unemployment benefits. In fact their results indicate that higher unemployment benefits for teenagers have added six or seven percentage points to their participation rate; a very sizable influence compared to the actual level of 0.60. The impact of unemployment benefits seems greatest when combined with the availability of part-time jobs. Thus their results support their hypothesis that the restrictive conditions imposed on dole recipients concerning the penalties of working part-time has made recipients reluctant to accept part-time work. The growth of part-time work has been of little benefit to unemployed teenagers; instead it has attracted a number of full-time students into the part-time workforce on an after school hours basis.

Other studies which have discovered a direct relationship between unemployment benefits and teenage unemployment include Blandy (1979a) and McMahon and Ramasamy (1980). However when McMahon and Ramasamy look at teenage male and teenage femal unemployment separately, it is only in the former that a link between the dole and unemployment persists.

In contrast, the study by Paterson (1980) indicates that unemployment benefits have had little effect on

teenage males, but some effect on teenage females. Paterson's work differs in several respects from other researchers in this field. First, he confines his ambit to unemployment benefit recipients, which is a subset of all CES unemployed registrants. This excludes certain groups, such as recent school leavers and most unemployed married women (if their husbands are working) because they are ineligible for the dole. Therefore his conclusions need to keep these limitations in mind. There are also one or two econometric problems (in the way serial correlation is suppressed) which further restrict his conclusions. Secondly, instead of explaining unemployment rates, Paterson adopts a gross flow approach, which breaks up the unemployment rate into a "gross inflow into unemployment" component and a "duration" (in weeks) component. While this approach is becoming more popular in the U.S.A. (especially with the Brookings Institute) and Canada, Paterson's (1980) study is the first Australian counterpart in this area.

The first feature of Paterson's study, its limitation to sub-groups rather than embracing all teenage unemployed, has a redeeming aspect. Since full-time high school students are ineligible for the dole, Paterson's (1980) study is able to exclude them. His finding that unemployment benefits have no significant effect on male teenage unemployment therefore applies to non-student male teenagers. Thus if the results by Gregory-Duncan (1979a), Blandy (1979a) and McMahon-Ramasamy (1980), concerning unemployment benefits are valid, it would suggest that such results refer exclusively to students rather than non-students in the male case.

Although it is tempting to infer that a consistent explanatory pattern is beginning to emerge from these studies, the Gregory-Duncan model needs to be respecified before it can be used as a basis. Their Table 2, equation (4) results (not shown here) suggest that the unemployment benefit - part-time work nexus operates similarly for both teenage males and females. Paterson's (1980) results contradict this notion. Moreover, looking at the important 1974/75 year, teenage male part-time jobs rose by 12,000 while teenage female part-time jobs rose by only 5,000; in both cases labour supply increased by 20,000. The thesis that the extraordinary growth in teenage labour supply is primarily due to the part-time entry of students squares better with males than females.

In summary, apart from expanding the Gregory-Sheehan (1975) labourforce participation model, the Gregory-Duncan (1978a) study has raised our consciousness concerning the role of working high school students. In 1971 there were about 8,000 male high school teenagers working part-time, which grew to 35,000 by 1978. The respective female figures are 7,000 and 40,000. Very little is known about the behaviour of these working students. In light of the unsure nature of the Gregory-Duncan results, it seems plausible that the rapid entry of these working students into the workforce may have nothing to do with our unemployment benefit system. Similar trends (at different points in time) have occurred in the U.S.A. and Canada within stable unemployment benefit systems. It seems consistent with a growing need for students to gain financial and social independence, though little research work has been done in this area; an area which is clearly inter-disciplinary.

The emergence of a vast part-time army of working students raises a number of social issues about the desirability of such a trend. There may be many who argue that they are simply displacing non-student teenagers from jobs and therefore brakes should be applied. Had there been no increase in full-time students working part-time, then perhaps this would have enabled a reduction in current teenage unemployment of up to 28,000 males and 32,000 females. This is the "negative" aspect of the issue. More positively, the trend has enabled youths from poorer families to finance their education (and therefore reduced entry to the full-time workforce and perhaps the dole queue); it may be satisfying social needs

(for more independence) of teenagers from all social classes; and it is giving teenagers valuable work experience which must facilitate their eventual entry into the full-time workforce. I prefer to emphasise the positive rather than the negative feature, though future research about the motives of working students will undoubtedly throw more light on this controversial question.

The second aspect concerning teenage labour supply is what I have called the "shopping around" dimension; that is, the amount of job switching before a teenager settles on a semi-permanent career path. Students have incomplete information about the content and desirability of most jobs and often learn by trial and error. During the first twelve months or so in the workforce, the typical school-leaver undertakes a lot of job-changing until his options narrow down to one or two occupations. This behaviour used to be embraced by the term frictional unemployment, though it is often referred to now as job search behaviour. The models devised by economists emphasise the benefits and costs of job search (often in an unemployed status), with school-leavers in particular subject to very large benefits (namely a whole lifetime in a preferable job) from initial job-changing. Nonetheless, adults also, though to a lesser extent, engage in job search for better paying or more pleasant positions.

The job search approach is useful for examining a number of related issues. First, it helps explain why in full employment conditions the teenage unemployment rate is likely to exceed the adult unemployment rate. In 1966 when both the teenage and adult labour markets were balanced, as indicated by approximate equality of CES unemployment and CES vacancies for each market, the teenage unemployment rate was still about two percentage points above the adult unemployment rate. Other periods of full employment reveal a similar pattern. There is a permanent differential between teenage and adult unemployment rates which cannot be explained by demand deficiency and which is consistent with natural job turnover of school leavers. The "natural" rate of teenage unemployment, based on 1974 full employment conditions, is about five per cent.

Secondly, some of the points discussed above, concerning unemployment benefits and working students, can be brought into the job search approach. Much of the North American and British discussion about unemployment benefits is in terms of its effect on time spent job searching. Unemployment benefits are seen as reducing the cost of search, though the quantitative effect does not seem to be large in the North American empirical studies. When we noted the positive effects of high school students working, one point was the possibility that it facilitates later entry into the full-time workforce. In the long term this could help to reduce the amount of "shopping around" (frictional unemployment) by school leavers.

Thirdly, there are many other factors which affect the amount of frictional unemployment or efficiency of initial job search. These include the quality of job information available to students before they select their secondary and tertiary courses; job information at the time of entering the workforce and the role of CES and other employment agencies; vocational guidence; education curriculum content (vocational/general mix, etc.); the special problem of girls taking less useful courses; and the aspirations and expectations of teenagers. The Williams Committee Report (1979) provides some discussion on these factors and academics have recently begun investigating them (Henderson 1977, Brosnan and Wilson 1978). Even the Federal Government has stated its intention of spending $150 million on school-to-work programmes over a five year period, though the full-scale start up date has just been deferred for a year. At the research level we have little idea which of the above alternatives is the most efficient and part-time student initiated work certainly needs to be inserted into the choice set. The flexibility of our education system and its ability to adjust to changing needs is but one of many elements in the job search

efficiency of school leavers.

V. Teenage Labour Demand

As we noted in Section III, a number of teenage unemployment studies purporting to say something about the effect of the recession on relative teenage employment are unsuited to the task. Instead it is necessary to explicitly test labour demand functions (perhaps simultaneously with labour supply functions). The standard labour demand approach involves explaining employment levels in terms of wage rates and output. Only two explicit teenage labour demand studies for Australia have been undertaken (Sheehan 1978, Merrilees 1979), though the results are tentative and much more work is required. Merrilees (1979) found that the recession had only a minor impact on relative teenage employment, moreso for boys than girls. The role of relative wages is clouded, with Sheehan downplaying the effects, while Merrilees regards the effects as more important. More work is needed with better models in order to clarify these issues.

The quality of teenage labour is a third demand element, which is particularly interesting in light of the contribution of the education system. Employer criticism of teenage labour is often couched in terms of school leavers having inadequate competence in the 3Rs. Economists have attempted to measure changes in labour quality over time, using both production function and vintage human capital approaches (Griliches 1970; Weiss and Lillard 1978). Generally speaking they find that labour quality is increasing steadily over time, with a sizable contribution from the education sector. These mainly U.S.A. findings, to the extent that they are mirrored in Australia, conflict with employer attitudes. It could be that the apparent increase in labour quality over time is concentrated in the upper tiers of the educational system, that is those preparing for semi-skilled and skilled white collar occupations; with little change in the low level, unskilled occupations. Additionally, employer attitudes in the past five years can be naturally explained by the process of firms being more selective when recruiting in a recession. Entry standards can be raised under labour surplus conditions, with firms more conscious of those applicants rejected than with those selected. There is little economic evidence that the "output" of the schooling system is falling in quality. Certainly there was no sudden change in 1974 which would explain the recent upsurge in teenage unemployment.

VI. Explaining the Trend in the Teenage Unemployment Rate Over the Earlier 1947-1974 Period

Excluding the severe 1961 recession, Table 2 reveals a growing teenage-adult unemployment rate differential from 1947 to 1971. Demand factors are generally unimportant in explaining this trend, as seen by comparing 1966 and 1947. In 1947 there was a minor recession, whereas 1966 was a boom year with teenage demand and supply in balance (using CES data). Similarly, 1974 also had a balanced teenage labour market, yet the differential continued to grow to over three percentage points (see Table 1). Thus we can reject relative wages, the trade cycle and labour quality (including displacement by married women) as factors explaining the 1947-1971 secular deterioration in the teenage-adult unemployment rate differential. Indeed demand was very buoyant throughout the 1960s, so it is implausible that the explanation could lie here.

This leaves supply factors as the key to the 1947-1971 upward trend in the unemployment rate differential. In this regard special emphasis (Henderson 1977) has been placed on demographic changes, particularly the rapid growth of teenage labourforce in the first half of the 1960s, as an aftermath of the 1946-1949 baby boom. This demographic shift in labourforce composition can be seen in columns (2) and (4) of Table 2, when 1966 is compared to 1954. Certainly there is a *prima facie* case that the 1954-1966 rise in the

teenage-adult unemployment rate differential can be ascribed to baby boom induced labour supply shifts. Concentrating on males, this case is upturned when we make other comparisons, such as 1961 and 1947 (both recession years). The differential rose despite a fall in the relative supply of teenagers. More generally, when the late 1960s and early 1970s are compared to the late 1940s and early to mid-1950s, we are comparing periods of similar relative teenage supply (that is, we are controlling for demographic influences) and yet the upward trend is clearly visible.

Table 2: Teenage-Adult Differential Unemployment Rate; Census Data 1947-1971

Census Year	Unemployment Male Rate Differential (percentage points) (1)	Share of Male Teenage Labourforce in Total (%) (2)	Female Unemployment Rate Differential (percentage points) (3)	Share of Female Teenage Labourforce in Total (%) (4)
1947	0	9.7	0	26.9
1954	0.6	8.5	0.6	23.6
1961	2.7	9.2	2.5	24.1
1966	1.6	10.4	2.3	22.2
1971	2.7	8.7	2.6	16.7

What then has caused this upward trend if demand and emographic factors are ruled out? My thesis would emphasise a rising level of frictional unemployment (see Section IV), which might be due to several factors, including a more complex, specialised job structure and perhaps more discerning job seekers.

VII. Conclusions

Hopefully this survey has created the impression that research on teenage unemployment is still at a rudimentary stage. Very little is known about the impact of demand factors on relative teenage employment. It might seem as if greater progress has been achieved investigating supply aspects. Yet there is reason to doubt the validity of the most persistent finding, namely the very large effect of unemployment benefits on the male teenage participation rate. Somewhere in this explanation is the role played by the growth of working high school students (to which we should add working tertiary students). The Gregory-Duncan (1979) hypothesis, that restrictive part-time dole benefits, more generous full-time dole benefits, availability of part-time work and part-time workforce entry of students have intereacted to raise teenage participation rates, is extremely plausible. Some of the evidence supports it. However, caution needs to be exercised when carrying out econometric tests of the effects of unemployment benefits. The sudden lift in benefit levels in 1973 creates something akin to a dummy variable; if there is an otherwise unexplained higher teenage participation rate in the 1974-1978 period, the benefit level "dummy variable" will spuriously pick it up. To guard against this happening, it is necessary that a model of teenage participation rates be able to separately explain the 1974-1980 period. During this period there has been a rapid decline in the real value of unemployment benefit for teenagers under 18 years of age, the effects of which a viable model would need to trace.

My opinion is that the link between unemployment benefits and male teenage labourforce participation and unemployment revealed in empirical studies to date is largely spurious. As discussed in Section IV, I believe that the growth in students working is largely independent of our unemployment benefit system, with Australia simply lagging behind trends very much evident in Canada and the U.S.A. We need to find out more about the motive and behaviour of working students, with likely synergistic effects from joint economic and

education research.

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THE SCHOOL AND TEACHER UNEMPLOYMENT: A STUDY TO INVESTIGATE MOTIVATIONS FOR ENTERING TEACHING

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Abstract

Within the context of reduced teaching opportunities in Australia, the goal of this study was to explore student motivations for entering teaching. The contextual framework around which the study was designed was provided by Wood (1978), who hypothesised that in terms of reduced employment opportunities, motivations to enter a profession would be intrinsic.

The sample consisted of 85 student teachers enrolled in a preservice primary school Diploma in Teaching course at the Townsville College of Advanced Education. Data was gathered by a Student-Teacher Motivations Questionnaire.

Significant findings of the study were that: candidates entered teaching with motivations that were mostly intrinsic; the candidates 'own decision' to enter teaching is assuming more importance than previous studies; and eighty percent of the subjects indicated they made decisions to enter teaching in either primary or high school.

The paper discussed implications of the findings for: career education in the primary school; student selection into teacher education courses and teacher unemployment. The discussion concluded by noting that teacher unemployment might be reduced if career education courses were conducted earlier in children's education.

Introduction

Although there has been a sharp decline in the number of teaching opportunities in Australian primary and secondary schools, a sizeable number of students continue to enroll in preservice teacher education courses. Arising from this concern, the objectives of this study were to: (a) explore the motivations of students entering the teaching profession, (b) investigate when students made decisions to enter teaching and (c) from the findings suggest implications for the school career education curriculum.

Review of the Literature

In the past: "What have been the motivations for students entering the teaching profession?" Fielstra (1955) found the most significant influence on teaching as a career choice was former teachers. This was followed by relatives and associate influence, next came reports on the need for teachers in magazine articles and finally parental influence (c.f. Haubrich, 1960).

At Northern Illinois University, Fox (1961) surveyed student opinions for entering a teacher education program. Responses included: a desire to work with children, impart knowledge, serve society, teach a specific discipline, and have a relatively short working day and year.

Pounds and Hawkins (1969) found that parental attitudes were the key influence on their children to enter teaching. The study revealed that more than 80 percent of parents sampled would urge their daughters to become teachers, but only 50 percent would encourage their sons to be teachers. Moreover, the

investigators found differences between rural and urban dwellers. For example, both sons and daughters of rural parents would be encouraged to enter teaching, while urban dwellers would encourage daughters, but not sons to enter teaching.

At the Illinois Teachers' College, Saxe (1969) identified five categories of reasons for entering teaching, these were ranked in the following order: idealistic reasons, such as expressing a desire to help; advantages of the teaching job, for instance, short hours; encouragement to enter a teaching career from parents, friends, or relatives; personal experiences with children such as babysitting and Sunday School experiences; and a liking for the school and learning.

Perry (1972) investigated the influence of teachers on decisions of entrants into teacher education programs. The study reported that elementary teachers made their choices in elementary school. However, females tended to make their choices in high schools to undertake secondary teaching.

In a review of research studies on reasons for entering teaching and sex type, Turner (1975) found that boys choose teaching later than girls. However, girls who decide to enter teaching during elementary school tend to choose elementary teaching, while those girls who decide during high school enter high school teaching. By way of contrast, boys put off making decisions to enter teaching and the choice is delayed sometimes after the teacher preparation program itself.

Of those girls who make a choice of a teaching career early in life they tend to pursue that choice. However, girls who make a choice later in life tend to have lower academic results in teacher education courses than those who enter teaching early.

Contextual Framework

The contextual framework around which the objectives of this study were explored was provided by Wood (1978), who hypothesised that in times of reduced employment opportunities motivations for entering the teaching profession would be intrinsic, rather than extrinsic. There is some empirical evidence to support this position.

Wood (1978) at the State University of New York completed a survey on reasons for entering teaching among 52 education students. Wood's study revealed that primary motivations were intrinsic with personal experiences with children at the top of the list. Such experiences included caring for children at home, baby sitting, observing children growing and teaching in Sunday Schools. Wood pointed out that the results from his survey differed from previous studies in which investigators found extrinsic factors to be of greater influence. Wood's categories were ranked as follows (highest to lowest): personal experiences with children, a liking for children, altruistic reasons, relatives, criticism of schools, advantages of the job, former teachers and liking for school and learning.

Instrument

To explore the purposes of this study, the investigator used a Student Teacher Motivations Questionnaire contrived from Wood (1978). The instrument consisted of three questions: (a) Who was the "greatest" influence on you to become a teacher?, (b) When did you make your decision to enter teaching? and (c) What prompted you to become a teacher? The instrument was implemented during May, June and October, 1979.

The Sample

The sample for this study consisted of 85 preservice primary school student teachers enrolled at the Townsville College of Advanced Education (TCAE) who were in the second year of their Diploma in Teaching course. Subjects were selected by a random sample of 145 students enrolled in the second year Diploma in Teaching.

Eighty eight percent of the participants in the study were between the ages of 18 to 20, with females making up 64.5 percent, and males 23.5 percent. The remaining 12 percent of the sample was comprised of males between the ages of 21 to 31 years (11 percent) and females aged between 34 or more (1 percent).

Results

The following results of the survey will be presented.

1. Who was the "greatest" influence on you to become a teacher?

Firstly, over 50 percent of all replies (52.4 percent) cited "myself" or "my own decision" as the most significant factor in becoming a teacher. Moreover, the data revealed that females (39.5 percent), more so than males (12.9 percent), tended to make their "own decisions" to enter teaching. These results differ from former studies in which researchers found parental influence the major factor (Pounds & Hawkins, 1969) and former teachers (Fielstra, 1955).

Secondly, 27 percent of all respondents noted that parents were the greatest influence on them to become a teacher. Here the data revealed that females (16 percent), are more influenced by parents than males (11 percent). This data supports previous findings by Pounds & Hawkins (1969) who found that parents would encourage their daughters to enter the teaching profession but not their sons. Further the mother is of greatest influence on decisions to enter teaching for both rural and urban dwellers' sons and daughters. The data revealed that the father takes a secondary contrast to Pounds & Hawkins study, no differences were found between urban and rural dwellers on influences to become a teacher.

Thirdly, 10 percent of the replies stated former teachers were the greatest influence to become a teacher. This finding contradicts Fielstra (1955) who found former teachers to be the most significant influence on choosing teaching as a career.

Several other influences were mentioned: relatives (5 percent) and school counsellors (2 percent).

2. When did you make your decision to enter teaching?

The intent of this question was to collect data on when decisions to enter teaching were made. Observations might then be drawn regarding differences in sex type and the pursuit of a teaching career. A summary of the TCAE survey regarding this question is set out in Table 1.

Table 1: Percentage Distribution of Sample by Sex Type Who Made a Decision to Enter Teaching in Primary and High Schools or After High School (N=85)

	Males %	Females %	Total %
Made decision to enter teaching:			
Primary School	13	32.5	45.5
High School	17.5	17	34.5
After High School	4	16	20
	34.5	65.5	100

It can be observed from Table 1 that:

(a) females choose a teaching career earlier than males. This finding is supported by Turner (1975) who also found males made a decision to enter teaching later than females; and,

(b) most males and females who do decide to enter primary school teaching do so while attending either primary or high schools. The data, for instance, on Table 1 reveals that 80 percent of both males and females made decisions to enter teaching while attending school, while 20 percent made the decision after high school. This finding contradicts Perry (1972) who found elementary teachers made their career choice in elementary school.

3. What prompted you to become a teacher?

In answering this question students were asked to write as many reasons as they felt prompted them to become a teacher. A total of 147 responses were recorded by the 85 students in the sample. Responses were found to form the eight general categories reported by Wood (1978). Table 2 presents the responses in terms of Wood's categories.

Table 2: Distribution of student responses regarding reasons for becoming a teacher (N=85)

Response Category (Wood, 1978)	Percent of Total Responses by Sex and Age			
	Sex	Age 18-20	Age 21 or more	Total %
Liking for children	Male	6	3	
	Female	23	—	
		29	3	32
Advantages of the job	Male	7	3	
	Female	11	1	
		18	4	22
Altruistic reasons	Male	2	3	
	Female	14	1	
		16	4	20
Liking for schools and learning	Male	4	1	
	Female	9	—	
		13	1	14

cont.

Response Category (Wood, 1978)	Percent of Total Responses by Sex and Age			
	Sex	Age 18-20	Age 21 or more	Total %
Criticism of schools	Male		1	
	Female	5	-	
		5	1	6
Personal Experiences with children	Male	1		
	Female	3		
		4		4
Relatives	Male	1		
	Female	-		
		1		1
Former teachers	Male	1		
	Female	-		
		1		1
				100

Table 2 reveals that over 88 percent of all responses are distributed among four of the eight categories identified by Wood. Liking for children is ranked highest at 32 percent. Students mentioned "I have always liked children" and "I like children, I get on well with them".

The second largest category of responses was advantages of the job (22 percent). Replies mentioned: good pay, plenty of holidays and good hours.

Altruistic reasons were ranked third (20 percent). Here students stated: "a willingness to help children" and "I would like to help them with their personal development".

A liking for schools and learning was ranked fourth (18 percent). Students referred to enjoyable experiences at school and a liking for subjects taught at school.

Other reasons mentioned were: criticism of schools 6 percent ("I had some bad teachers and now I want to give children a better deal"); personal experiences with children 4 percent ("baby sitting"); relatives 1 percent ("my uncle was a teacher") and former teachers 1 percent ("I liked my teachers").

The TCAE survey provides some reasons why students are prompted to pursue a teaching career. Indeed, the present contractions in the employment market for teachers has not deterred them. Several observations might be made from Table 2. First, three of the four highest ranked categories, namely, liking for children, altruistic reasons, and liking for schools and learning, show that intrinsic reasons, rather than extrinsic factors, are strong motivational factors. This finding is supported by Wood, who also found intrinsic factors of great importance. A contrast, however, between TCAE's and Wood's findings was that extrinsic factors (advantages of the job) were ranked second at TCAE and sixth in Wood's survey. This finding might be accounted for by the age difference between samples - at TCAE the mean age was early 20's, while Wood's was somewhat older in their later 20's. At the same time cultural differences between the samples should not be discounted.

A second observation is of interest which relates to sex differences in the response categories. Females ranked solely intrinsic factors in the two highest categories (liking for children and altruistic

reasons), whereas, males ranked both intrinsic and extrinsic factors in theirs (liking for children and advantages of the job). Moreover, males for their highest ranked category put extrinsic factors (advantages of the job) marginally ahead of intrinsic factors (liking for children). This observation may indicate differences between males and females in their motivations for teachers among this sample.

One additional observation is important regarding TCAE's survey findings. The students' liking for children, was ranked highest for reasons for selecting teaching. This finding seems logical, and possibly predictable, because students whose motivations are predominantly job security or good pay would possibly be discouraged from entering teaching at a time of poor employment prospects.

Implications

The following implications are drawn from the results of this study:

1. Teaching, despite the poor employment opportunities, is continuing to attract entrants into teacher education programs. The TCAE survey which sought to determine reasons why students entered teaching showed that motivations were largely intrinsic with a liking for children heading the list. These results compare with recent findings in the USA, but differ from earlier studies which found extrinsic factors to be a greater importance.

2. In terms of sex differences, this study revealed that females, more so than males, were motivated by inner reasons, as opposed to external factors. This finding might be a function of the regional nature of the TCAE. Other surveys need to be undertaken at other campuses to confirm this phenomenon. However, this result may have some implications for student selection into teacher education courses, such as the ratio of males to females selected.

3. The study has also shown that traditional influences on entering teaching are disappearing. The prospective teacher's "own decision" in career choice is assuming significance over other influences such as former teachers, parents and relatives. Hence, it could be inferred that because youth are relying more on themselves in choosing a career, and less on parents, schools are coming under increasing pressure to equip pupils with the skills they need to get and hold jobs. Moreover, this issue raises the significance of career education in primary and secondary schools as well as the need for schools to provide pupils with opportunities to grow and develop.

4. It could be observed that eighty percent of males and females in this study made decisions to enter teaching while attending school. Although this might be accounted for by the age group of the sample it appears that school is a significant period for decision-making to enter a teaching career. Therefore, it is suggested that it should be standard practice in schools, and particularly primary schools, to teach pupils about occupations and economics so that school leavers might markedly increase the career options open to them, as well as enabling schools to better meet the needs of employers.

Indeed, teacher unemployment, and unemployment among youth, might be reduced if career education courses were conducted earlier in pupil's education. This is because job awareness might be included as a 'central organising principle' around which career education could be incorporated into teaching basic academic skills. As a result, job awareness would be structured as a developmental process, K to 12, and assist pupils to make the transition from school to work.

In conclusion, if the results and implications of this study can be supported by other investigations, the effects of changes in influences for becoming a teacher might have implications for the future of the teaching profession.

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WOMEN'S PARTICIPATION IN TAFE - ANOTHER TICKET TO NOWHERE?

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INTRODUCTION

The area of Technical and Further Education is currently in the limelight. It is important because of its size and because of its close relationship with particular workforce needs. Whereas in 1978 colleges of advanced education and universities together had 309957 students enrolled, TAFE boasted 829654 students.(1) TAFE is particularly significant because of its role in apprenticeship training, for, in a time of high unemployment, there remains a shortage of skilled labour in some areas. TAFE is the only area of higher and further education that is expanding. Its expansion is government policy, implemented largely at the expense of other education sectors, and this expansion is likely to continue in the near future at least.

In examining the situation of women in TAFE we must look beyond their near equal participation rates with males, to the kind of courses they are enrolled in, and at their potential for obtaining work of equal status and carrying equal conditions to that obtained by their male counterparts. We will argue that women are dramatically underrepresented in vocational courses and that TAFE is serving them no better today than it was a decade ago. The Tertiary Education Commission Report for the 1979-81 Triennium indicated that TAFE should be responsible for the educationally disadvantaged. Regarding solutions to youth unemployment, it is claimed:

> "It is clear that if the education system is to have any impact on the post-school experience it will most appropriately be achieved through TAFE..." (2)

Given the history of TAFE development, the economic and technological changes affecting women's work and present government policies, we will argue that we have little confidence that TAFE in its present form can meet the pressing vocational needs of women. The increasing participation of women in TAFE gives it an important function in disguising female unemployment and lack of vocational opportunities for skilled work.

Technical and Further education today is comprised of six distinct streams: (1) The professional diploma stream; (2) The paraprofessional courses; (3) Trade courses, including pre-apprenticeship and pre-employment courses in apprenticeable trades; (4) Commercial; (5) Preparatory or bridging courses; (6) Adult education or other non-vocational courses. Between 1965 and 1975 the total number of enrolments in TAFE in N.S.W. increased by 73 per cent. Whilst the number of male enrolments increased by 44 per cent, the number of female enrolments more than doubled.(3) Such an increase meant that by 1975 in N.S.W. women represented 42 per cent of all technical college enrolments. Similar trends were taking place in other states until by 1977, females constituted 44 per cent of the students enrolled in TAFE.(4)

Such trends sound promising for women until we realise that though they have entered TAFE in increasing numbers over the last decade, they have entered areas which do not lead to a recognisable qualification at the diploma, certificate or trade level. Much of their education in TAFE does not lead to increased job chances. The Williams Report noted that female students comprised:

- 29% of enrolments in the professional (diploma) stream
- 28% of enrolments in the para professional (certificate) courses
- 6% of enrolments in trade courses, including pre-apprenticeship and pre-employment courses in apprenticeable trades
- 53% of enrolments in commercial and technical vocational training not considered as trade or middle level
- 52% of enrolments in preparatory or bridging courses
- 72% of students in adult education or non-vocational courses.(5)

Apprenticeship training is undoubtedly the most important area of TAFE in terms of the amount of money spent on it, its importance to the economy and the chances it offers for a place in the skilled workforce. In a study of girls and apprenticeships, Calvert notes that women were approximately 42 per cent of graduates in Victorian universities; 68 per cent of students at CAE's but only 6.5 per cent of apprentices in training.(6) In N.S.W. in 1978 women accounted for 4.4 per cent of apprenticeships in TAFE.(7)

KANGAN AND AFTER

The history of the growth of tertiary education in Australia demonstrates increasing federal involvement in the area. During the post-war economic boom the Murray Report of 1957 paved the way for Commonwealth entry into university education and led to the provision of the necessary funds to produce a highly skilled professional elite. In 1964 the Martin report recommended the setting up of federally funded CAE's, propping up the elite and expensive universities and meeting the continuing need for technocrats and teachers to provide for an expanding economy and population. Technical and further education was left out in the cold until 1974 when the Labor Government was in power, but it was by then becoming increasingly clear that any federal government concerned about providing vocational education consistent with economic needs, would have to come to terms with the TAFE area.

Technical and further education is composed of two different kinds of education - one predominantly vocationally oriented and the other predominantly for leisure. Government Reports have all concerned themselves almost exclusively with TAFE's vocational orientation, particularly with the area of apprenticeship training. Traditionally, apprenticeship training has been a burden shared with employers, a situation which has increasingly resulted in shortages of employees adequately trained in the trades because employers have been either unable or unwilling to meet the costs of training apprentices if they found themselves in the position of being able to hire already trained workers. Both Labor and Liberal federal governments had realised by the 70's that massive infusions of federal money into technical education were necessary if skilled labour shortages were to be ameliorated. The onset of economic recession in 1974 increased the need for federal involvement in technical education because as general unemployment grew so too did the problem of shortages of skilled labour.

The Kangan Report of 1974 was produced before the economic recession had begun to bite and under a Labor government. Its chairman, Myer Kangan, formerly Deputy Secretary of the Australian Department of Labour, had a committee of 11 members comprised of public servants, educationists and trade union and industry representatives. The only woman on the committee was Kathleen Homes of Unilever Aust. Pty. Ltd., and Federal Secretary of the Institute of Personnel Management. Her presence does not seem to have led to an analysis of the situation of women, who consistently remain the second class students in the TAFE area.

The terms of reference of the Committee were to furnish information and advice relating to the development of technical and further education in Australia, including financial assistance to the States. In carrying out its task the Committee was asked to take into account:

(a) the promotion of the vigorous and well balanced development of technical and further education throughout Australia;

(b) overall manpower policy and national and local occupational requirements;

(c) the emerging needs of industry, commerce and governments as they adjust to technological, economic and social change;

(d) community attitudes and the needs and aspirations of individuals seeking to undertake courses in technical and further education;

(c) the optimum use of resources.[8]

The Kangan Report notes that 70 per cent of men and over 80 per cent of women in the labour force have no formal educational qualifications at the trade, technician or other vocational level, or a degree. It claims that those who enter TAFE are those who don't have equality of access to vocational education with those who attend university or colleges of advanced education, and it argues that the central aim of the Report should be "the provision of unrestricted access to post-school education through government maintained or administered institutions not already assisted through the AUC or the Australian Commission on Advanced Education".[9]

The report also notes that women are less likely to enrol in TAFE than are men, and adds that "there is wide scope for women of all ages to gain formal qualifications in both the technological and non-technological fields in technical colleges, and enhance their occupational standing". It goes on ...."With the advantage of formal qualifications acquired during their youth, women could resume more prestigious careers later in life with less re-training".[10] Perhaps this easy optimism about the rosy future of women is due partly to the view that "it is obvious that middle level occupations in community services, health, recreation, education, libraries and child care will increase their share of the labour force".[11] Though these are certainly traditional areas of female labour, during the current recession some of these areas are contracting rather than expanding[12] which makes the committee's omission to analyse the segmented labour market even more disturbing in retrospect.

Although the Kangan Report meant large infusions of federal money into the TAFE system and the setting up of the coordinating federal body the Technical and Further Education Commission, in all states the major control of the TAFE area remains with State Departments under Ministers for Education. Except in N.S.W. which has a Department of Technical Education and in South Australia which has a Department of Further Education, TAFE comes within Departments of Education.

The Report of the Technical and Further Education Commission for the triennium 1977-79 reflects the exigencies of the economic situation.

It is a sign of the times that TAFE is implicitly arguing for funding allocations from other parts of the education sector, accepting that tertiary education spending in general will decline in real terms.

> There exists an imbalance in the allocation of resources in the post-school sector which is the result of past policies of both Commonwealth and State Governments. This imbalance is preventing TAFE from adequately meeting its responsibility for the education and training of the bulk of the nation's skilled labour force.[13]

The Report for the Triennium notes that TAFE enrolments since 1974 increased by over one quarter in only two years, a fact related to the abolition of all tuition fees. Further massive enrolments are expected. No plans are suggested to monitor these enrolments or the workforce destinations of TAFE graduates on a sex basis to see if the females who have flooded largely into traditionally female areas of training will actually get work when they leave college. In spite of youth unemployment, particularly marked among young women attempting to break into clerical and secretarial work, and the shortage of skilled workers in some trades, no constructive policies are formulated as to vocational guidance of female school leavers before or on entering TAFE.

The Report on TAFE for the Triennum 1977-79 appears reasonably cognisant of the place women occupy as workers in the Australian economy. It notes that 60 per cent of women workers are employed in clerical, sales and service categories. The report also notes the under-representation of women in the professional, managerial and administrative and skilled trades categories. "Thus women remain concentrated in a

relatively small number of lower-paid and less-skilled occupations within the labour force".(14) Though TAFE is seen to be of "major importance" in correcting the workforce inequalities suffered by women, the Report gives no clue as to how TAFE institutions might affect the situation.

The Williams Report, which we discuss at length later in the paper offers only tokenistic answers to the problem of sexual inequality in TAFE. In some states TAFE reports have looked into the situation of women in trade training. Time will tell whether these more thoroughgoing studies have any impact on existing TAFE structures.

WOMEN'S WORK AND THE CURRENT RECESSION

It has been pointed out by many writers that the labour market is segmented according to sex. 84.4 per cent of women in the workforce are in overwhelmingly female occupations - concentrated in 18 of the 61 occupations listed by the government statistician. In 1977, shop assistants, cooks, waitresses, housekeepers, caretakers and cleaners represented more than one quarter of the female labour force. Another third of the women in the labour force were concentrated in the clerical area. More than 10 per cent were concentrated in the nursing and teaching professions. Almost 67 per cent of working women were employed in these groups of occupations, in contrast to only 16 per cent of the male labour force.(15) There is no evidence to suggest that workforce segregation based on sex is diminishing, and there are signs that some occupations are becoming increasingly segregated.(16) In work areas where both males and females are employed it is normal to find males in superior positions to women in the work hierarchy. Women are consistently clustered in the lower-paid lowest status occupations and are under-represented in senior professional and managerial positions as well as in the professions, particularly the technologically oriented ones.

During the post-war economic boom in Australia the workforce participation of married women increased dramatically. According to the 1954 Census 12.4 per cent of married women were working and by 1974 the figure had risen to 40.7 per cent of married women. Over the period 1950-74 there was an increased number of jobs for women, particularly in the clerical and service occupations which expanded more rapidly than the traditionally male dominated industrial sector. Though boom economic conditions had ended by 1975, according to a recent OECD Report, the number of women workers increased steadily to the end of 1978 with a levelling off in 1979.(17)

The increasing participation of women in the workforce through the recession can primarily be accounted for by the widespread increase in part-time work, which has largely occurred in those occupations with a great proportion of women workers - for example, in the wholesale and retail trades, in health and education and in the clerical and sales areas. In May 1978, 66.2 per cent of part-time workers were married women.(18) Teenagers of both sexes also hold a large share of the part-time job market which grows continually as full-time jobs are dispensed with by employers as a cost cutting measure. In August 1979 there were 279 female and 198 male teenage part-time workers for every 100 in August 1970.(19) Part-time work has grown to the extent that in 1980 almost one in five workers is a part-time employee. These workers, as we have pointed out, are overwhelmingly female. Part-time work has clearly become the only alternative to unemployment for many women, particularly for young school leavers and for women with young children. It is usually temporary, non-unionised, poorly paid and bears poor conditions that can be varied at the employer's whim.

The current recession has affected all areas of female labour but in some areas this has been masked by the use of part-time workers to replace full-time workers. The following graph[20] shows the decline of Australian manufacturing over the past decade and the effect this has had on female employment levels:

Source: Department of Employment and Youth Affairs, Employment Prospects by Industry and Occupation, May 1979.

Whilst manufacturing decline affects some female jobs, technological change is having a massive effect on others. Electronic Data Processing has already meant some displacement of clerical positions and one estimate places the ultimate potential of EDP as being able to process up to 15 per cent of all office work, the equivalent of approximately 220,000 jobs.[21] In Bookkeeping, electronic machines are 300 times more efficient than manual operations. In banking and in other areas, tasks such as cheque sorting are able to be carried out by machines at one fifteenth of the cost of labour.[22] In retailing, point of sales terminals are being introduced. This computerised technology stores all essential information on stock, credit, sales, accounting and output. Many functions in retail stores are replaced by technology and a check is kept on the work output of the few remaining employees. Word processors will probably have the most dramatic effect on female areas of work for the future. The N.S.W. Department of Industrial Relations and Technology has suggested that 50,000 positions throughout Australia, or 25 per cent of all typists' positions may be eliminated in three years from November 1978 due to the increasing use of word processors.[23]

Since 1976, policies of the federal government have affected areas where women have traditionally found work, in health, social work and education. Cutbacks in welfare spending are part of the current government strategy for solving the current economic crisis by redirecting money to the private sector to supposedly restore profitability.

The following table demonstrates the extent of welfare cuts.

($m. at 1976/77 prices)

	1976/77	1977/78	1978/79	1979/80*	Aggregate three year loss
Social Security and Welfare	6431	6834	6873	6956	+ 535
Health	2543	2542	2448	2467	- 76
Education	2160	2149	2104	2003	- 157
Housing	549	463	322	280	- 269
Culture and Recreation	257	238	237	249	- 8
Urban, Regional and Environment	251	140	91	74	- 177
Urban Public Transport	58	46	35	33	- 25

Source: Transnational Co-operative Ltd. Working Paper on the Australian Economy, T.N.C. Industry, 2/22.

* Estimated by Commonwealth in 1979/80 Budget.

Apart from the rise in Social Security and Welfare, the aggregate three year loss is $712m. or at estimated 1979/80 prices about $900m. or $300m. per annum.

All these factors have created a situation where female teenagers are the group hardest hit by unemployment. Twenty three per cent of the female teenage labour force was seeking work in 1979, against cent of the male teenage labour force.(24) The chronic nature of female youth unemployment in particular is masked by increasing school retention rates for girls which overtook those for boys in 1976. Male school retention rates have begun to decline over the past few years.(25) We will argue that a close examination of women's participation in TAFE demonstrates a role in disguising the unemployment and increasingly severe inequalities experienced by women in the current economic climate. Even as early as 1975 a survey of students in TAFE conducted by the Commonwealth Department of Education hints at the comparatively precarious position of female students in streams 1-5. The survey notes that females consistently enter courses of short duration whilst males tended to undertake much longer courses. Whilst 91.1 per cent of male students surveyed had a full time job only 43.5 per cent of females did. 1.6 per cent of males worked part time and 7.2 per cent were unemployed compared with 12.3 per cent of females who worked part time and 44.2 per cent who were unemployed.(26)

WOMEN IN TAFE AND THE WILLIAMS REPORT

The expansion of TAFE recommended by the recent Williams Report is being done at the expense of other tertiary education sectors where women are better represented than in TAFE. In June 1979 Senator Carrick, the Minister for Education, announced cuts amounting to $41.2 million. University and CAE expenditure was reduced by $16.2 million in 1980 and there was a freeze on enrolments and cutbacks in spending on equipment and buildings programs. Meanwhile TAFE was to increase 10.7 per cent in real terms. Teacher education, a predominantly female field in universities and CAEs, has been particularly hard hit by present government policies and has experienced a declining enrolment since 1976.(27)

The Williams Report is most concerned with trade training, the area of spending which most directly assists industry. Only a passing mention is given to the under-representation of women in general, and particularly in this area where they constituted only 6.0 per cent of enrolments in 1978. The Report recommends a progressive movement towards pre-employment training for apprentices, together with a subsidy to industry, in order to avoid further workforce shortages in the skilled trades. The Report's recommendations for TAFE, and the government's responses to them are closely concerned with efficiency and effectiveness of training. Obviously, a great many able females are lost to the trade training area. This fact appears of little interest to the Williams Committee, in spite of its preoccupation with cost/effectiveness.

Although the Williams Report does recognise the disadvantage of women in technical and further education it makes no recommendations directed specifically at remedying this situation. TAFE authorities are directed to increase the range and flexibility of programs to make TAFE more accessible, to provide more bridging, remedial and recurrent courses with special emphasis on the needs of the educationally retarded and handicapped unemployed young people. These recommendations appear to be a cynical way of cheaply disguising unemployment. Jobs are not available and government policy makes no attempt to remedy the situation. It seems reasonable to assume that the kind of courses suggested by the Williams Report provide principally for increased competition for scarce jobs.

School leavers' failing rates of attendance at universities and CAE's, coupled with the continued expansion of TAFE, suggest that students who would have proceeded to higher education in former times are saving the government money by taking up training in TAFE instead. On the other hand, with its

remedial courses, EDUY programs and proliferation of other courses, TAFE provides a cheap means of disguising and handling at least a portion of the unemployed - particularly the young female unemployed.

WOMEN IN TAFE IN N.S.W.

Let us look closely at the N.S.W. TAFE statistics[28] and, in the light of our previous arguments, examine how this institution is serving the vocational needs of women: in 1973 women formed 37 per cent of all TAFE enrolments and by 1978 (the last year for which figures were available) female enrolments had risen to 45.8 per cent of the total. The student population had risen dramatically from 165,312 in 1973 to 243,839 in 1978, an increase of nearly 68 per cent over only five years. These gross figures give no indication of whether students are enrolled in full-time or part-time courses, or in more than one course and thus must be treated circumspectly. One of the problems in the TAFE area is the paucity of reliable or meaningful statistics, a problem partly caused by the rapidly changing nature of TAFE courses, particularly those in the non-vocational area. The following table gives a sex breakdown of NSW TAFE enrolments in 1978.

Number of Women Enrolled in NSW TAFE in 1978 and as a Percentage of all TAFE Enrolments

	F.		M.	
Dip.	434	(0.2%)	1031	(0.4%)
Cert.	10264	(4/2%)	31243	(13%)
Trade	1679	(0.6%)	36885	(15%)
Special	98710	(40%)	54539	(23%)
All courses	111653	(45.8%)	132186	(54.2%)

Note: Per cents do not add up to 100 because all post-trade and post-cert. courses have been omitted from statistics. These courses are small and reflect the same male/female ratios as do diploma and certificate courses.

Six types of TAFE enrolment are listed in the Williams Report, yet in NSW TAFE statistics the areas of (a) non-trade commercial and technical training courses; (b) preparatory or bridging courses and (c) non-vocational courses are all grouped under one category - special courses.

This amalgamation of categories in which women are most represented makes analysis of their situation extremely difficult and is perhaps an indication of the view that their participation is not worth recording in more meaningful detail.

DIPLOMA COURSES

The number of women undertaking Diploma Courses in TAFE in NSW dropped from 533 (53.9 per cent of total Diploma Course enrolments) in 1971 to 434 (19.6 per cent of total Diploma Course enrolments) in 1978. Over one third of the women enrolled in Diploma Courses in 1978 were enrolled in the area of Welfare Work - an area which records one of the highest levels of graduate unemployment. A government labour market analysis of employment prospects by industry and occupation carried out in 1979 notes:

> In NSW demand for welfare workers is currently depressed due to restrictive government funding policy which affects not only their own departments, but also the ability of government agencies to maintain desirable employment levels. The aggregate number of persons seeking welfare worker positions exceeds the number of positions currently available.[29]

At the bottom of the pecking order, after university and CAE trained applicants, prospects for the TAFE graduate do not look very bright.

CERTIFICATE COURSES

In 1971 there were 4256 women undertaking certificate courses in TAFE in NSW and these comprised 11.8% of total enrolments in certificate courses. By 1978 this figure had risen to 10264 female enrolments, 24.7% of total enrolments. Some of the largest enrolments were in Welfare Work (601), Fashion (994),

Child Care (706) Pathological Technicians (898) and Commerce - Accounting (1067). Since 1976 the child care budget has been cut by 40 per cent in real terms[30] making this not a promising area in which to find employment. Health and welfare related areas have been strongly affected by the cutbacks outlined earlier.

The government labour market analysis claims "the demand for fashion designers has not significantly declined despite the present recession in the clothing industry". However, since the present NSW workforce in this area contains between 300 and 350 members, it does not augur well that there are 994 women presently undertaking TAFE certificate courses in the area.[31] Accountancy is a large and promising field and one that has not been severely affected by the recession. However, the position of inexperienced new graduates is one of slight oversupply[32] and, once again, TAFE graduates must stand in line with those from more prestigious tertiary institutions.

TRADE

There has been a massive 22.6 per cent rate of growth in trade training between 1971 and 1978; from 31449 to 38564 enrolments. In 1971 female enrolments accounted for 4.7 per cent of total enrolments in this area. In 1978 they accounted for 4.4 per cent. Most female enrolments can be accounted for by the single area of hairdressing. If we ignore hairdressing, women accounted for.83% of apprenticeship enrolments in 1971 and.83% of enrolments in 1978. Women are therefore hardly represented in the TAFE area which most concerns the policy makers, where most of the labour shortages are, and where much of the money on TAFE courses is being spent. The very small movement of women into trades other than hairdressing since 1971 has been more than offset by the penetration of male students into hairdressing over that time, an area of work which, in NSW is still buoyant.[33] In 1978 there were 41 NSW TAFE trade apprenticeship courses. Women were numerically represented in all of them, but most commonly there was only one or two women in each course. It is clear that TAFE should actively encourage and aid more women to enrol in trade courses. Many less able boys are doing apprenticeship training whilst many more able girls are already standing in unemployment queues or taking courses which will lead to them. The results of sexual segmentation in the labour market and in the education system that leads up to it are both wasteful and discriminatory.

SPECIAL COURSES

Special courses, as we have said, comprise non-trade technical and commercial training courses; preparatory or bridging courses and non-vocational courses. Much of the increase in these enrolments is accounted for by people over the age of 21[34] and some of it may be related to unemployment or necessary retraining caused by technological change. Much more specific information about the kind of enrolments in the area must be made available before more than tentative conclusions can be drawn.

In 1972 there were 51887 women enrolled in some form of special course. These enrolments represented 26 per cent of total TAFE enrolments. By 1978 there were 98710 women enrolled in special courses and they represented 64 per cent of special enrolments and 40 per cent of total TAFE enrolments. In 1978 there were 278 special courses listed in the NSW TAFE statistics. It is often difficult to tell which of these courses are supposedly vocational and which are purely hobby courses.

In 1972 there were 15627 women undertaking secretarial studies in NSW TAFE. By 1978 this figure had risen to 30043 women. Sweet notes that the effects of technological change, industrial decline and unemployment in Australian industries are reflected by declining enrolments in TAFE.[35] In areas of study linked to the manufacturing sector TAFE enrolments have faithfully reflected labour market trends. However,

the largest course in TAFE, secretarial studies, which accounted for 12.45 per cent of all enrolments in 1978, is overlooked by the argument. The only large vocationally oriented field for women in TAFE, leads to employment severely reduced by technological change. The Department of Employment and Youth Affairs has estimated that between 600 and 800 jobs were eliminated by word processors in NSW in 1978 and that between 4350 and 7000 jobs will have disappeared in NSW between 1978 and 1981.(36) Yet in spite of this year by year female enrolment in secretarial courses continues to rise, partly because most young girls have been given no assistance to find other options.

There are two labour markets divided along sex lines and two TAFE training areas that service them. One, for males is varied and flexible, as Sweet indicated. The other, for women is rigid and wasteful because women's work is disappearing. Rather than confronting the inequity of this division by attempting to change women's enrolment patterns, NSW TAFE is producing studies of secretarial students' attitudes towards unemployment and running courses to help them cope with it. An expensive and not very innovative approach to the problem to be sure. A NSW TAFE Report on the Impact of Technological Change on Secretarial Work(37) recommends that the intake on secretarial courses should be limited to those with some prospect for employment, i.e. those capable of obtaining high typing speeds necessary for word processor operators. No recommendations are made in the Report as to how TAFE should help the young women who flock to the Secretarial Studies courses re-orient to more appropriate currently male dominated courses of study.

Another massive area of female enrolments in 1978 was in the area of homemaking - e.g. cooking, dressmaking, home furnishing. These non-vocational enrolments accounted for 19.6 per cent of enrolments in special courses. We do not wish to argue against the participation of women or men in leisure areas of TAFE study, but to emphasise that, particularly in the case of women, enrolment in leisure courses in TAFE is disguising their massive under-representation in areas of study which might confidently be predicted to lead to paid work.

In view of the oft stated idea that women decide not to take up apprenticeships because of their lack of interest in the course subject matter, it is instructive to note the number of women doing leisure courses in traditionally male areas. For example, in Farm Technology, F & M Welding, Basic electronics, Litho-small offset printing, Auto-Replacement parts and Homecraft woodwork female enrolments account for 37.2 per cent of all enrolments. Such a figure suggests that it is not primarily through lack of interest that the female enrolment in apprenticeships is so low.

TAFE special courses include matriculation courses, in which almost half the enrolments are by women. These courses have been hailed as TAFE's contribution to recurrent education, and many people, especially older women who missed out on full secondary schooling, have entered universities or CAEs through this route. TAFE (NSW) also mounts entry courses to its own certificate and diploma courses, for those lacking the requisite school qualifications. Important though they may be to selected individuals, female enrolments in those courses account for only 4.2 per cent of enrolments in special courses, a pittance compared to secretarial studies which accounts for 12.6 per cent.

CONCLUSION

On present trends it is impossible to avoid the conclusion that women in education and in work are being particularly hard hit by the current recession. Increasing numbers of women are entering the workforce, but they are doing so in low paid, low status, part-time work which serves the interests of employers who seek a docile non-unionised labour force. The effects of government cutbacks in welfare and education spending, coupled with the effects of technological change in the clerical and sales industries make it

likely that there will be an increasing mismatch between the education systems which women enter and the work that they take up at the end of their training. Whilst some women, particularly in universities, are managing to make inroads into male-dominated areas of training, in TAFE few women can be confident that their training will lead to a full-time job consistent with their level of training.

Government policies and trends in TAFE indicate no serious effort is being made to ameliorate the situation which women find themselves in. Instead, increasing enrolments by women in particular are masking rather than alleviating the tremendous problem of female unemployment in general and female youth unemployment in particular. Any real attempt to solve female youth unemployment would involve positive action in TAFE at the trade level on behalf of women. At present, less capable men go into apprenticeship training whilst more capable women are being trained for areas of work which have no future. Government boosting of pre-apprenticeship training courses which aid employers by taking away from them the burden of training in the earliest years when the trainee is of least use as a worker, should involve public and positive attempts to recruit girls and boys in equal number. A young woman with one year of training and a creditable performance in that training would clearly have a good chance of proving her worth to employers and breaking down anti-female prejudice, especially now that Anti-Discrimination Legislation can be used in her favour. TAFE action should be directed towards finding employment for such girls and monitoring their progress so that future policies can be more sensitively in tune with women's needs and experiences.

Other suggestions for aiding women in TAFE have been advanced by Corich [38] in South Australia. She suggests participation targets for the enrolment of women in vocational TAFE courses; the removal of structural barriers to their participation such as lack of child-care facilities; flexible timetabling and the provision of bridging, re-entry and refresher courses designed to meet their needs. She recommends, too, that TAFE develop a close liaison with employers, trade unions, the Trades and Labour Council and the Trade Union Training Authority with the aim of breaking down the sex-typing of occupations. Also recommended is a program of affirmative action in relation to female staffing with participation targets for women at all levels of TAFE in order to provide women students with role models and a more sympathetic learning environment.

A public education campaign should be directed throughout the community, especially aimed at students parents, unions and employers. At secondary school girls should be given clear information about the structure of the labour force and changes affecting women's work. Encouragement to study maths, science and "masculine" subjects such as metalwork and woodwork should be accompanied by information to parents showing why this is necessary. Careers guidance in schools should be practically oriented and give advice based on understanding of changes in the workforce, rather than in terms of what kind of job might "suit" the supposed psychological attributes of the student. Girls must be given concrete information about the job market which allows them to make a realistic assessment about their future place in the workforce.

Until these and other changes are seriously considered, implemented and reviewed, the education of women in the tertiary sector, and particularly in TAFE, will become an even more wasteful and discriminatory business than it is at present. Studies of the relationship between the world of training and work which ignore a labour market and training system segmented according to sex are becoming increasingly invalid as the effects of the recession, government policies and technological change bring about significant changes in the community and workforce. Because of these changes, TAFE at present can be seen as doing little for women other than disguising their unemployment or helping them mark time in preparation for low paid, unskilled part-time work.

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Students' Learning Preferences and Perceptions of Classroom Learning Atmosphere

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An integrated cognitive/affective approach to learning emphasizes the active mental role of the learner and de-emphasizes the environmental control attempted by the teacher and the learning materials. In this conception of learning, the learners themselves construct the meanings, inferences, and images, rather than accepting these as given in a stimulus-response fashion by external situations. Learners are seen as "active, responsible, and accountable" in creating their own understanding (Wittrock, 1979, p. 5). The control comes from the conscious perception of the external stimuli; therefore, attention, motivation, locus of control, and attributions of success and failure are basic elements in the temperament or disposition with which a learner approaches a task. The learning which occurs is mediated by these cognitive/affective states. An instructional treatment arranged for a group of learners, therefore, is not necessarily perceived nor preferred in the same fashion by any two of them. The quality of the eventual learning is likely to be influenced by the interaction between the learner's mental mediators and the specific treatment presented. Walberg argues that a learner's perception of the classroom environment is a key determinant of learning outcomes (1977). It is proposed in this paper that a student's preference for a mode of learning - cooperative, competitive, or individualized -is a basic part of the "mental set" by which a learner perceives dimensions of classroom atmosphere or climate. It is further argued that students with different learning preferences will perceive the dimensions of the same classroom atmosphere in different ways, or alternatively that students with different preferences will see different dimensions of the classroom atmosphere as being salient for personal satisfaction and effective learning. Moos has shown that perceptions of learning atmosphere in high school classrooms can be "typed" on the basis of orientation toward teacher control, innovation, affiliation, task, or competition (1978). It may well be productive, he states,

> to identify students who might benefit more from one type of classroom social environment than another [and] to independently identify types of students and types of classrooms and then investigate their interactions (1978, p. 64).

In a further exploratory investigation, Hearn and Moos considered subject matter as a variable with an effect on learners' perceptions of classroom atmosphere, the argument being that predominant modes of thinking and relating are perceived as differing from one school subject to another (Hearn and Moos, 1978). The cognitive/affective basis for learning, therefore, is seen in terms of the preferences of the learner toward learning modes, the perceptions by the learner of classroom learning atmosphere, and the subject matter of the class.

In the present study we examine the connections between cooperative, competitive, and individualized learning preferences of secondary school students and the classroom atmospheres in two contrasting school subjects, English and Mathematics. The Learning Preference Scale - Students was administered to 279 students in Years 7 and 11 in two Sydney high schools. Each student answered the questions twice, once with regard to English and once with regard to Maths. As well, each student completed the Classroom Learning Atmosphere Scale - Secondary twice, once to describe the "learning atmosphere" in the English class and again for the Maths class. With these data we attempt to link learning preferences, perceptions

of atmosphere, and contrasting subject matter.

Method

Instruments

Preferences for cooperative, competitive, and individualized learning modes were obtained by means of the Learning Preference Scale - Students (LPSS). Developmental work on an early version of the LPSS (Form B) has demonstrated factorial validity, internal consistency, and test-retest stability (Owens and Straton, 1980). The current version of the LPSS (Form C) is shorter than its predecessor with a number of changes in item phrasing (Barnes, Owens, Straton, 1978). There are 36 items, each a brief statement about a feature of learning by cooperating with others, by competing with others, or by working alone. Items referring to each of the three learning modes are content-matched in 11 groups, and one group contains unmatched items. Each sub-scale in the LPSS, therefore, is composed of 12 items. Students respond to each item by indicating how "true" or how "false" the statement is for them. A four-point answer scale is used, and the response categories are described as "completely true", "more true than false", "more false than true", and "completely false". Three items of the 12 in each sub-scale are expressed in negative phrasing to counteract an acquiescence effect. Numerical values are assigned to the answers on a 4-3-2-1 basis, with 4 representing the strongest preference. Three main preference scores (min. 12, max. 48) are calculated for each student, indicating strength of preference for cooperative, competitive, and individualized learning situations. In addition, two involvement scores are calculated. Combined Involvement is obtained by adding the cooperative and competitive sub-scale scores; this is an indication of desire for contact with others during the learning processes. Cooperative Involvement is obtained by subtracting the competitive sub-scale score from the cooperative score; this is an indication of the relative strength of the cooperative preference within the general desire for contact with others in learning.

Perceptions of learning atmosphere were obtained by means of the Classroom Learning Atmosphere Scale - Secondary (CLASS). Following developmental work on a trial version, the current scale (Form B) was prepared (Owens, Barnes, Straton, 1978). There are 42 items, each a brief statement about a feature of the learning atmosphere or classroom climate that prevails in a designated class. Items, which were once again balanced in direction of phrasing, were constructed on the basis of seven thematic concepts, six items referring to each. Three of these concepts refer to the perceived press for Interpersonal Relationships in the way classroom business is accomplished (Affiliation, Involvement, Spontaneity). Four of the concepts refer to the perceived press for Personal Development (Intellectuality, Autonomy, Practicality, and Self-Understanding). Students respond to each item in the same fashion as for the LPSS, indicating on a four-point scale how "true" or how "false" they feel the statement is for that classroom. Answers are again scored on a 4-3-2-1 basis, with a high score representing strong press perceived. Two perception scores are calculated for each student. Press for Interpersonal Relationships is obtained by adding the totals from the three component sub-scales (min. 18, max. 72). Press for Personal Development is obtained by adding the totals from the four component sub-scales (min. 24, max. 96). The Cronbach alpha for the two major scales administered in each subject was greater than .70. Mean inter-correlation among the seven sub-scales is .34, indicating that they measure distinct though somewhat related aspects of classroom social environments.

Sample

The sample for this study was drawn from a much larger sample for the main investigation in the

CCILE Project. In the main investigation one state high school and a neighbouring primary school were selected from each of four separate suburbs in the western metropolitan area of Sydney. All schools, like the eight chosen for the development of the instruments in the previous year (Owens and Straton, 1980), were co-educational and comprehensive, and the group provided a population with a broadly representative socio-economic background and with a relatively low non-English-speaking migrant population. A parallel study was carried out in five primary schools and four high schools in Western Australia. In N.S.W. approximately 1900 students participated. Students from class groups in the upper primary years and the full range of secondary years completed one or more scales, always including the LPSS. In some cases, they also completed a shortened, modified form of the Minnesota School Affect Assessment, and the primary classes completed a preliminary version of the Classroom Learning Atmosphere Scale-Primary.

Two of the N.S.W. high schools were chosen for the study reported in this paper*. Both schools were chosen from areas ranked relatively low on the standard indicators of socioeconomic status. Two school years were selected in each school. Year 7 and Year 11 represent a wide age range, and the years differ further from each other in so far as Year 7 students remain together as one group for teaching in all subjects whereas Year 11 students are grouped for teaching in each subject according to their ability in that subject. Hence, in Year 11, classroom groups are constantly changing, depending on the subject being studied. As far as possible, all Year 11 classes were included from both schools. In Year 7, three classes were included from each school, comprising approximately the top half of the ability range for the year in each case.

In all there is complete data in this study for 279 students. A further nine students were omitted as they failed to complete all papers adequately. The numbers in each school and year, and the sex breakdown are given in Table 1.

Procedure

Administration of the scales was carried out by the research worker and two assistants, teachers being excluded from the room to ensure complete confidentiality. Absentees were followed up by return visits to the schools.

Testing was carried out in Term 2 of the school year, although the students had been tested in Term 1 as part of the main investigation. Students from the selected class groups answered both LPSS and CLASS with reference specifically to English and Maths. Thus, it might be quite possible to answer "clearly true" to "Trying to be better than others makes me work well" with reference to Maths and "clearly false" to the same question with regard to English. Similarly, a Maths class group might be described as high on press for relationships whilst the same student describes his English class as low or average in press for relationships.

Using a balanced design so that half the classes in each year group and school, as far as possible, began with LPSS and the other half began with CLASS, the students were asked to complete the paper for one subject first and then to complete the same paper for the other subject.

The students answered the questions while sitting in English class groups in School A and in Maths class groups in School B. They were required, therefore, to consider both the group in which they were sitting at that time and one other. For Year 7 students the difference would be only of classroom and teacher with the students being the same, but in Year 11 the students answered one of their sets of ques-

* In W.A., one high school participated in the study on which this paper is based, but a different procedure was employed and the data are not presented here.

tions with reference to a class group which was quite different in student composition as well as in subject content, room and teacher.

In all, each student completed 4 scales, a total of 156 questions, and there was little or no incidence of difficulty or resistance. In fact, students generally felt it was an interesting exercise, and it is worth noting that, although the strictest confidentiality was promised and ensured, a number of students expressed the view that their teachers should be made more aware of the feelings and attitudes of students in matters of this kind. In addition to the student data, the teacher associated with each of the classes involved completed the teacher form of the LPSS (LPST) and also completed the CLASS referring specifically to that class group.

The question papers, once completed, were coded in order to match the four papers for each student and to identify the school and class group for each subject, and then the papers were optically scanned. After editing to eliminate marking and coding errors, and to exclude cases of incomplete data, a merged file of data was raised, containing 279 cases each with identification data and seven subscale scores. Data were analysed by means of the procedures in the SPSS (Nie et al., 1975).

Results

Learning Preferences

Mean scores and standard deviations for the double administration of the LPSS are presented in Table 1.

Table 1

Mean Scores and Standard Deviations for the Cooperative, Competitive, and Individualized Sub-Scales of the LPSS Administered in English and Mathematics

		Sub-Scale											
		Cooperative				Competitive				Individualized			
		English		Maths		English		Maths		English		Maths	
Group	N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
School A	126	37.9	6.08	37.0	5.88	35.5	5.31	35.3	5.32	32.9	5.84	33.6	5.93
Year 7	75	36.7	6.51	35.9	6.29	35.2	5.43	34.5	5.23	34.0	6.17	34.6	6.03
Males	30	36.1	6.66	36.5	5.66	35.1	5.02	35.1	5.46	33.9	5.06	33.8	5.45
Females	45	37.1	6.45	35.6	6.71	35.3	5.74	34.1	5.09	34.1	6.86	35.2	6.39
Year 11	51	39.6	4.94	38.5	4.91	35.9	5.16	36.5	5.28	31.4	5.00	32.0	5.45
Males	28	38.7	4.28	38.1	4.33	35.6	5.68	37.2	5.24	31.4	4.66	32.8	4.97
Females	23	40.7	5.55	39.0	5.60	36.2	4.55	35.7	5.33	31.3	5.48	31.1	5.98
School B	153	37.1	5.50	36.0	5.53	35.9	5.77	36.5	5.65	33.1	6.41	33.7	6.02
Year 7	87	35.7	5.70	34.9	5.76	35.3	5.95	35.8	5.82	33.6	6.58	34.2	6.18
Males	50	35.3	5.84	34.3	5.78	35.3	6.35	36.0	6.29	33.7	7.00	34.5	6.93
Females	37	36.1	5.55	35.8	5.70	35.2	5.45	35.5	5.20	33.4	6.10	33.9	5.09
Year 11	66	39.0	4.63	37.5	4.87	36.7	5.47	37.3	5.31	32.4	6.15	33.0	5.78
Males	30	40.0	4.60	39.0	4.86	36.4	5.64	37.6	5.76	31.7	5.65	33.5	6.09
Females	36	38.2	4.55	36.3	4.59	37.0	5.38	37.3	4.99	33.0	6.55	32.6	5.57

A four-way repeated measures ANOVA was carried out for each of the five LPSS scores. The independent variables were School (2), Year (2), Sex (2), and School Subject (2). The significant main and interaction effects are summarized in Table 2.

Table 2

Summary of Significant Effects from the Repeated Measures ANOVAs for the LPSS Administered in English and Mathematics (df = 1, 271)

LPSS Preference Score	Significant Main and Interaction Effects
Cooperation	Year ($F = 25.1$, $p < .01$), Subject ($F = 7.8$, $p < .01$)
Competition	Year ($F = 6.0$, $p < .05$), Sex x Subject ($F = 4.2$, $p < .05$)
Individualization	Year ($F = 8.3$, $p < .01$)
Cooperative Involvement	Subject ($F = 7.1$, $p < .01$), School ($F = 4.4$, $p < .05$)
Combined Involvement	Year ($F = 26.4$, $p < .01$), Sex x Subject ($F = 6.9$, $p < .01$)

The Year 11 students expressed preferences for learning involving greater cooperation and greater competition. The only significant preference shown by the Year 7 students was for learning involving greater individualization. The students generally expressed a stronger preference for more cooperative learning in English than in Maths, and in School A more than in School B. Boys preferred more competitive contact in learning Maths, and girls more in learning English. The same trend appeared in overall desire for personal contact during learning these subjects (Combined Involvement).

Classroom Learning Atmosphere

Mean scores and standard deviations for the double administration of the CLASS are presented in Table 3.

Table 3

Mean Scores and Standard Deviations for the Relationship and Personal Development Sub-Scales of the CLASS Administered in English and in Mathematics

		Sub-Scale							
		Relationship				Personal Development			
		English		Maths		English		Maths	
	N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
School A	126	48.1	7.53	45.8	7.63	63.3	9.45	55.2	9.60
Year 7	75	46.7	6.73	44.5	7.11	62.8	9.11	56.0	8.26
Males	30	45.7	5.33	44.6	7.64	60.8	5.75	56.6	7.49
Females	45	47.5	7.49	44.5	6.83	64.2	10.62	55.6	8.80
Year 11	51	49.9	8.29	47.6	8.06	64.0	9.98	54.1	11.27
Males	28	49.0	8.14	46.6	8.85	63.9	8.88	54.6	11.30
Females	23	51.0	8.53	48.8	6.99	64.0	11.39	53.5	11.47
School B	153	45.4	8.32	45.8	7.32	62.2	9.60	58.1	8.88
Year 7	87	42.1	6.72	44.1	6.34	59.1	7.89	58.2	7.59
Males	50	42.4	7.56	44.4	6.48	59.1	8.30	57.6	7.69
Females	37	41.7	5.47	43.7	6.22	59.0	7.41	58.9	7.50
Year 11	66	49.7	8.33	48.1	7.91	66.4	10.12	58.1	10.40
Males	30	49.2	8.71	48.6	9.10	67.5	11.42	59.6	11.28
Females	36	50.0	8.09	47.7	6.87	65.4	8.96	56.8	9.58

A three-way ANOVA was carried out for each of the two CLASS scores within each school subject separately. The independent variables were School (2), Year (2), and Sex (2). The significant main and interaction effects are summarized in Table 4.

Table 4

Summary of Significant Effects from ANOVAs for the CLASS Administered with Reference to English and Mathematics Classrooms (df = 1,271)

CLASS Learning Atmosphere Score	Significant Main and Interaction Effects	
	Mathematics Classrooms	English Classrooms
Relationship	Year (F = 16.5, p <.01)	Year (F = 38.6, p <.01) School (F = 9.1, p <.01) Year x School (F = 5.2, p <.05) Year x Sex x School (F = 5.1, p <.05)
Personal Development	School (F = 6.6, p <.01)	Year (F = 16.7, p <.01) Sex (F = 4.8, p <.05) Year x School (F = 6.2, p <.01)

In both Maths and English classrooms Year 11 students perceived a greater orientation to interpersonal relationships than Year 7 students, and in English a greater orientation to personal development as well. School B students perceived greater stress on personal development in Maths; School A students saw greater stress on relationships in English. In School B, however, Year 11 students saw much more emphasis on relationships in English than Year 7 students did, a difference that was more marked for girls than for boys. In orientation to personal development in English, at Year 7 level, School A was seen as greater than School B, but at Year 11 the position was reversed. Finally, girls saw a greater emphasis on personal development in English than did boys.

Learning Preferences and Classroom Atmosphere

For each classroom in the sample (N = 26) the five LPSS preference scores were correlated with CLASS Relationships and Personal Development scores. Each correlation coefficient was converted into an equivalent Fisher Z. The advantage of such a conversion is that the sampling distribution of the standard score is approximately normal, meeting the necessary assumption for analysis of variance. For each of the 10 groups (5 x 2) of LPSS/CLASS correlations (Fisher Z.) a three-way ANOVA was carried out. The independent variables were School (2), Year (2), and School Subject (2). The significant effects are summarized in Table 5.

Table 5

Summary of Significant Effects from ANOVAs for LPSS/CLASS Correlations for Each English and Mathematics Classroom (df = 1,18)

Correlation	Significant Effects
LPSS Cooperation/ CLASS Relationship	School x Year (F = 6.5, p <.05)
LPSS Cooperation/ CLASS Personal Development	School x Year (F = 9.7, p <.01)
LPSS Combined Involvement/CLASS Relationship	School x Year (F = 6.6, p <.05)

The correlations between Cooperative Preference and Relationships were much higher in Year 11 classrooms than those in Year 7 in School B, while these correlations were lower in Year 11 classrooms than Year 7 classrooms in School A. For the correlations between Cooperative Preference and Personal Development, the same between-School differences appeared, with the between-Year differences being even more pronounced. The pattern was repeated for Combined Involvement/Relationships correlations. These results were sub-

stantiated by subsequent multivariate analyses of variance in which LPSS/CLASS Relationships and LPSS/CLASS Personal Development correlations were analyzed in two separate clusters.

The final phase in processing the data was based on contrasting groups of students in each of the 26 classrooms. Two groups were identified:

a) students with high LPSS Cooperative Preference scores and low LPSS Individualized Preference scores (High Co/Low Ind)

b) students with low LPSS Cooperative Preference scores and high LPSS Individualized Preference scores (Low Co/High Ind)

On the basis of responses to the LPSS, the High Co/Low Ind group is characterized by a strong social orientation to cooperative interpersonal contact with others in learning situations, and the Low Co/High Ind group is characterized by a strong autonomous orientation to working by oneself in learning situations. Group sizes are presented in Table 6.

Table 6

Groups From Each Classroom Formed on the Basis of Contrasting LPSS Cooperative Preference Scores and Individualized Preference Scores

	Year 7											
	Mathematics						English					
	School A			School B			School A			School B		
	7.1	7.2	7.3	7.1	7.2	7.3	7.1	7.2	7.3	7.1	7.2	7.3
Class Total	24	22	29	30	29	28	24	22	29	30	29	28
High Cooperative/ Low Individualized	8	7	5	7	13	8	8	8	8	10	11	10
Low Cooperative/ High Individualized	6	7	9	9	8	12	6	6	9	9	7	8

	Year 11													
	Mathematics							English						
	School A			School B				School A			School B			
	11.1	11.2	11.3	11.1	11.2	11.3	11.4	11.1	11.2	11.3	11.1	11.2	11.3	11.4
Class Total	15	17	11	13	27	15	11	19	18	14	21	21	13	11
High Cooperative/ Low Individualized	2	6	4	4	7	5	6	5	8	4	9	9	4	1
Low Cooperative/ High Individualized	5	4	2	5	12	7	2	6	5	3	5	6	5	6

English N = 279. Maths N = 271. The eight "missing" students are in two Year 11 maths classes that had insufficient numbers to include in this analysis.

Year and Subject median scores on the LPSS sub-scales were used to determine cut-off points in establishing these groups. After examination of frequencies, the same cut-off points were used in all classes in the same Year/Subject/School category. For example, in the High Co/Low Ind groups in each of the three English classes in Year 7 at School A the High Cooperative scores were 37 or greater, and the Low Individualized scores were 34 or less. In the three Low Co/High Ind groups the Low Cooperative scores were 36 or less, and the High Individualized scores were 35 or greater.

A one-way ANOVA was carried out for each of the two CLASS scores with the independent variables being High Co/Low Ind and Low Co/High Ind groups (2). The significant effects are summarized in Table 7.

Table 7

Summary of Significant Effects from the One-Way ANOVAs for the CLASS With High Cooperative/Low Individualized and Low Cooperative/High Individualized Groups of Students in Each Year x Subject Classroom Combination

CLASS Learning Atmosphere Score	Year 7		Year 11	
	Maths (df = 1,97)	English (df = 1,94)	Maths (df = 1,75)	English (df = 1,74)
Relationship	F = 5.0, p <.05	F = 7.1, p <.01	F = 1.8, n.s.	F = 16.6, p <.01
Personal Development	F = 10.2, p <.01	F = 6.9, p <.01	F = 3.2, n.s.	F = 8.8, p <.01

In Year 7 Maths and English, and in Year 11 English, students in the High Co/Low groups had significantly greater perceptions of both press for relationships and press for personal development than students in Low Co/High Ind groups. In Year 11 Maths, however, perceptions did not differ between High/Low groups.

Discussion

Senior high school students express a much greater preference for more cooperative and more competitive social contact during learning than first-year high school students. English generally is seen as providing more opportunity for cooperative interaction than Maths, though girls prefer competing in English more than boys do, whereas boys prefer competing in Maths more than girls do. Linked with these findings is the conclusion that English classes seem much more varied in classroom atmosphere than Maths. The senior students perceive more differences than junior students; girls perceive more differences than boys. The particular school, too, seems to have a greater effect on perceptions of atmosphere in English classes than in Maths classes. The picture that takes shape is that the teaching of English may occur more idiosyncratically than the teaching of Maths, being less bound by structured demands of topic and sequence and more responsive to the strengths and special interests of the teachers and to the requests of the students, and, to an extent, being responsive to the local needs of the school and its community. Students become aware of this idiosyncrasy in two ways:

1) by observing opportunities for affiliation, involvement, and spontaneity and by differentiating their perceptions of the resulting classroom press for interpersonal relationships;
2) by observing opportunities for intellectuality, autonomy, practicality, and self-understanding and by differentiating their perceptions of the resulting classroom press for personal development.

Allied with these perceptions is a general preference for cooperative learning in English classes, though it is interesting to note that, as well, girls feel comfortable competing in the verbal skills required in this subject.

It is not simply the teaching of a specified subject that affects the perceptions and preferences of the students, however. A particular school, with its distinct organizational climate and teaching staff, also makes a perceptible impact upon the attitudes of the students. The two schools in this study seem to have had contrasting effects on the students being investigated. In classroom correlations between cooperative learning preference and both perceived press for relationships and perceived press for personl development, Year 7 was higher than Year 11 in School A, but lower in School B. It is tempting to attribute this to differences in the processes of socialization (enforcement of school rules, balance between academic and extra-curricular activities, degree of timetable innovation) in the two schools. Despite the care taken to locate an equivalent pair of schools, however, it is not known for certain

whether one of the two first-year intakes was atypical in some unexpected way, nor whether one of the two senior years had had special treatment or experience in the course of its progress through school. What must be stressed, however, is that though unexpected differences occurred between schools, all the effects reached a satisfactory level of significance, and so the findings are more than suggestive trends.

It can be said firmly, though, that in general the preference to learn in social harmony with others is clearly related to perceptions of actual opportunities to do so in the classrooms, both in English and in Maths. When separate sub-groups of High Co/Low Ind and Low Co/High Ind students are identified in each classroom, however, the two subjects once again appear dissimilar. In the first year of high school, High Co/Low Ind students in both English and in Maths report greater perceptions of relationships and personal development in classroom atmosphere. By the fifth year, however, only in English classes do these students report the same perceptions. The learning atmosphere in senior Maths classes is not perceived as it had been in first-year classes by High Co/Low Ind students. Perhaps the fact that the student composition of Year 7 Maths and English classes is identical has an effect on the similarity of perceptions in that year. If this is so, however, then the perceptions of learning atmosphere in all of the Year 11 classes should be disordered, not just in Maths. In senior English, it is significant that students with a great preference to work cooperatively with others and with relatively little desire to work independently see the learning atmosphere in their classes as being characterized by friendliness, absence of restraint, intellectual challenge, and self-understanding.

In conclusion, there are three general outcomes from this study. First, attitudes and perceptions of students are linked in such a way that the social environment of the classroom which is revealed may plausibly be expected to have a direct impact on learning, opening the way for further experimental research. Second, by responding to students' learning preferences and to the dynamics of classroom life, a sensitive teacher can enhance the quality of learning in his subject, but the opportunities for this enhancement may well be more easily realized in some school subjects than in others. Third, the validity of the LPSS has been augmented sufficiently to commend the instrument for diagnostic use by teachers.

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PRACTICAL AND THEORETICAL IMPLICATIONS OF FINDINGS IN RELATION TO TEACHING PROCEDURES USED BY PRIMARY SCHOOL TEACHERS IN THEIR CURRICULUM IMPLEMENTATION

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Introduction

The findings reported in this paper form part of the results from a survey undertaken in 1977, involving a sample of 163 full-time practising primary school teachers in the North West Education Region of New South Wales.

The research aims of the study were to investigate curriculum procedures used by primary school teachers in relation to their planning, content organisation and teaching, and to ascertain which factors were the most important and strongest influences on these procedures. The intention was largely to discuss these findings in light of the current milieu of school based curriculum development.

In this paper some of the findings in relation to the teaching procedures are outlined after a brief description of the study's theoretical framework and methodology. Details of these findings are preceded by an outline of the theoretical and research background to the teaching procedures section of the study.

Theoretical framework and research objectives of the study

The main questions of the study were not those in relation to curriculum content and its effects, which are nevertheless important questions, but were those which ask: What is happening in the planning and implementation of the curriculum at the school and classroom level? and: What contextual factors and influences impinge upon this planning and implementation?

The curriculum was taken to be a series of consciously planned, structured and presented learning activities. A distinction was made between the intended curriculum and what was termed the 'operational curriculum'.

Attention has been drawn to the distinction between the curriculum as intended and its actual implementation by, for example, Johnson (1967, 1969), Taylor (1970, 1974, 1975). It was felt that this study required a more precise definition of the operational curriculum than that used by Taylor (1970, 1974, 1975), namely, a definition which incorporated the notion of both what is taught and the way it is taught. Such a definition can be found in Logan (1976). Logan defines the operational curriculum as follows:

> The operational curriculum is what actually happens in attempting to carry out the intended curriculum. (p.6)

This definition was accepted as the most appropriate for the study. An important part of "what actually happens" was interpreted as involving the procedures teachers employ in implementing the curriculum.

Those procedures that primary school teachers employ for this task, and of concern to the study, were those in connection with curriculum planning, content organisation, and teaching. These procedures involve behaviours and actions of a primary school teacher as he actually implements the curriculum.

Curriculum planning procedures, in the context of the operational curriculum, were recognised as those procedures concerned with curriculum planning strategies and behaviour at the school and classroom level.

Content organisation procedures, were seen as those strategies and behaviours employed by primary school teachers when organising subject matter or content. For example, the teacher might organise content in distinct separate subjects, or on the other hand use an approach which avoids separating content into separate subject areas.

Teaching procedures were defined as those strategies and behaviours employed by primary school teachers in the classroom as they maintain general classroom order and interaction, and as they teach subject matter or content to pupils.

'Content' was taken as constituting those subject areas accepted in the New South Wales Department of Education's syllabus guidelines as the content to be taught in that State's primary schools. These subject areas are those of Mathematics; Spelling and Handwriting; Reading; Oral and Written Expression; Natural Science; Social Studies; Art and Craft; Music; and Physical Education and Health.

Another objective of the study was to examine impingements on teacher behaviours investigated. The term 'curricular impingements' was used to refer to what were called 'curricular influences', both in-school and out-of-school, and also to other factors such as characteristics of the school, the teacher and the class being currently taught. See Fig.1 below for a diagram of the study's theoretical model. (It should be noted that the model is not one of the entire curriculum development process, but a diagram of the study's area of investigation.)

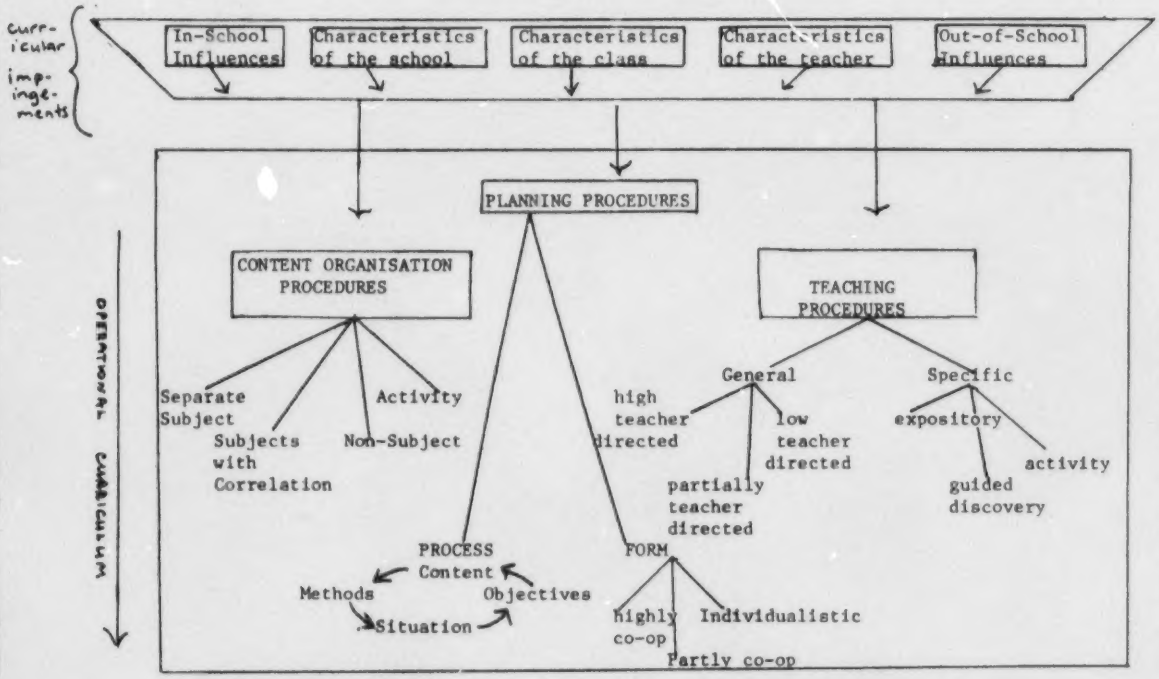

Fig.1. Completed Model of the Theoretical Framework for the Study.

This paper reports some of the findings in relation to the teaching procedures employed by primary school teachers as they maintain general classroom order and as they teach subject matter to pupils. Prior to this, however, the methodology of the study will be briefly explained.

Methodology

Because a board overview of the curriculum development situation in primary schools was desired, the

sample survey research procedure was used. The measuring instrument was constructed by the researcher and was pre-tested in two pilot studies. For the main study the questionnaires were personally delivered and left with teachers to complete in their own time.

The study's sample consisted of a two-stage randomly selected sample of full-time practising primary teachers in the North West Education Region of New South Wales. In order to obtain as great a representativeness as possible the sample was proportionally stratified using the criterion of school size. Two hundred and two questionnaires were distributed. The response rate was 81 percent (N=163). See Table 1 for details of the sampling design.

Table 1. Summary of Sampling Design

(Target Population - classroom teachers in grades K to year 6 in North West Education Region, NSW, excluding those in SSPs+)

School/ Department Types	Total Population		Study Population		Designed Sample				Achieved Sample			
	Schools/ Depts.*	Teachers *	Teachers in school categories*		Teachers (full-time classroom only)†		Schools/ Depts.	Av.#teachers to sample in each school/Dept.	Teachers	School/ Depts.	Response Rate	Stratum per-centage
	N	N	N	%	N	%	N	N	N	N	N	%
Class 1 Primary	17	292	292	30	60	30	7	9	59	7	51	31.2
Class 2 Primary	10	103	103	11	22	11	4	6	22	4	15	9.2
Class 3 Primary	48	152	152	16	32	16	12	3	33	12	24	14.6
Class 4 Primary	18	47	omitted ^	-	-	-	-	-	-	-	-	-
Class A Infants	12	159	159	17	34	17	5	7	34	5	28	17.1
Class B Infants	15	98	98	10	20	10	6	3	20	6	18	11.0
Class 1 Central	8	58	58	6	12	6	3	4	13	3	10	6.1
Class 2 Central	10	94	94	10	20	10	4	5	21	4	17	10.4
Class 3 Central	2	13	omitted #	-	-	-	-	-	-	-	-	-
Total		1016	956	100	200	100	37		202	37	163	100.1

+ An SSP is a special purpose school, e.g., School for Handicapped Children, National Fitness Camp School.

* Figures obtained from the North West Region Education Office as at 9/8/77. Teacher totals are corrected to the nearest round figure and include auxilliary, part-time and relief teachers which had been aggregated by the Regional Office into totals given to two decimal points. SSP teachers are not included in the figures.

‡ corrected upwards if remainder over 0.6%.

† "full-time classroom" means teachers with their own regular class, and excludes reserves, ancilliaries, part-time, and relief teachers, and teachers in promotions positions which require release from teaching one's own class.

^ omitted because Class 4 schools are one-teacher-schools and not applicable to the study.

omitted because of small numbers of schools (2) and teachers (13).

Limitations of the Study

(a) It was realised that investigation of such factors as teaching procedures by questionnaire might not yield as reliable information as a case study or participatory observation (cf. Goodlad, Klein et al. (1970) and Argyris and Schon (1974)). (b) Although the sample appeared adequately representative of the target population, and had a demographic distribution similar to Campbell (1975), caution is needed in generalising from the findings.

Teaching Procedures: background, findings, and their theoretical and practical implications

Research and Theoretical Background

There have been many studies which can be seen as constituting an investigation of teaching procedures. Studies of this type have often taken the form of comparing delineated styles of teaching in order to come to some conclusions about the success of one style as compared to another. The studies by Barker Lunn (1970) and Bennett (1976) are recent examples of this type of research, which has a very long tradition, and has, according to Gage (1972), an inglorious history (see also Travers, 1971).

Many studies have taken the basic concept of teacher style and attempted to classify teachers according to a typology construct based on procedures used. Some of these studies had the objective of formulating generalisations regarding the relationship of teaching style to pupils' overall achievement, e.g. Bennett (1976). Others investigated the relationship between teaching styles and pupils' achievement in specific areas, e.g. Orlander and Robertson (1973), regarding mathematics. Still others have

investigated the interaction between teaching styles and the characteristics of pupils' personalities, e.g. Gustafsson (1974), or growth in pupils' creative abilities, e.g. Thompson and Bower (1968). Many studies attempting to form generalisations for the evaluation of instruction have also employed a typology construct, e.g., Rosenshine and Furst (1973).

Some recent research into the context of the operational curriculum has investigated the teaching procedures used. Taylor (1975), using four role descriptions, made a cursory attempt at investigating teachers' procedures. He called the data from this "preliminary" when reporting that most teachers saw themselves as more teacher dominant than child-centred.

Unlike Bennett (1976), this researcher separated teaching procedures from content organisation procedures and planning procedures, and avoided use of terms such as "progressive".

In addition to delineating teaching procedures from procedures used for content organisation and for planning, a distinction was made in this study between what were termed 'general' teaching procedures and 'specific' teaching procedures. This distinction was based on the assumption that procedures used to maintain general classroom relationships tend to be based on a teacher-held theory, not necessarily articulated, regarding the nature of discipline, leadership and the role of the teacher. These procedures were termed 'general teaching procedures'. On the other hand, it was assumed that procedures used in the teaching of subject matter tend to be based on a teacher-held theory, again not necessarily articulated, regarding the nature of learning, the learner, and the promotion of learning. These procedures were called 'specific teaching procedures'.

That a teacher might change his "theory" regarding learning when delivering different subject matter with consequent non-trivial changes in his procedures has been implied in the published research of Barnes and associates (1967) and in their on-going research.

In addition to the above considerations, in the pilot studies undertaken during the formulation of the measuring instrument for the present study, the teachers indicated repeatedly that they vary their procedures for teaching different subject areas.

It was seen as important to ascertain whether or not such procedural changes generally occur. Also, Rosenshine (1970) draws attention to the fact that even in studies on teaching procedures used in the teaching of a subject, the research instruments used in the past have yielded results about the teacher's general behaviours, not about his behaviours in relation to the teaching of that subject.

In spite of the problems connected with constructing typologies of teaching procedures, some of which are mentioned above, it was considered necessary, for this study, to classify both 'general' and 'specific' teaching procedure into types. A dichotomous classification was considered. Such an approach is still evident in recent research, in addition to Bennett (1976), e.g. Flanders and associates (1965, 1970), Barker Lunn (1970). The use of a two-fold classification has the advantage of simplicity. It may, however, force the inclusion or disregard of teaching procedures which do not adequately fit two extremes: this could result in loss of precision. However, it was also recognised that it was essential to attempt to develop a classification which would be easy to administer, analyse and understand. In the light of these considerations, it was decided to adopt a three-fold typology for behaviours in relation to both general and specific teaching procedures.

(a) <u>The typology construct for 'general' teaching procedures</u>.

That it is possible and appropriate to classify 'general' teaching procedures into three types has been widely recognised since the classic experiments by Lippitt and associates in the 1930s. A continuation

of this form of classification was located in current literature. Bany and Johnson (1975), e.g., classify teachers into three types, directive; participatory: and permissive, basing this on teachers' use of power in the classroom. Directive: Teachers who use power in a directive manner and formulate, without giving students a say, the decisions regarding the structure of the work situation. Participatory: Teachers who use power in a participatory manner, allow pupils some say, and involve the class in problems that affect the whole group and its way of working and living together. Permissive: Teachers who are permissive, avoid using power or assuming a leadership role. The teacher leaves the group to work out its own problems.

The behaviours listed in Bany and Johnson's description of the three types refer to those procedures in the category of 'general' teaching procedures as defined for this study. Their descriptions, together with relevant parts of the literature reviewed, were used to formulate the study's typology construct for 'general' teaching procedures (see Table 3).

Table 3. Typology construct used for the study for the classification of general teaching procedures

Type No.	Name	Characteristics
1.	High teacher directiveness	Tight teacher control of activities, decisions; use of teacher punishment for control; teacher supervises and dominates classroom behaviour, rule-setting and behavioural limits.
2.	Moderate teacher directiveness	Teacher shares control and supervision with pupils; teacher-pupil consensus used for rule-setting, supervision of behavioural limits and use of punishment.
3.	Low teacher directiveness	Bases rules and control on pupil choice and suggestions - avoids use of punishment and exercise of leadership; pupils left to resolve for themselves the behaviour limits and control problems.

(b) The typology construct for 'specific' teaching procedures.

Of relevance to the development of a typology construct for 'specific' teaching procedures was the literature concerned with the classic debate about 'child-centred' vs 'subject centred' approaches, e.g. James (1965) vs Johnson (1968). Also of help were extracts from typologies found in descriptions of the characteristics of "modes of teaching" by, e.g. Hogg and Foster (1973), Park and Lewis (1975), Jarolimeck and Foster (1976) and Smith, Stanley and Shore (1957).

Many of the typologies found in the literature recognise two distinct procedural types which might be called 'telling' and 'activity', and mention the existence of a third type which might be termed the 'guided discovery' approach. The adoption of these latter procedures are advocated by, e.g., Bruner (1961), Shulman and Keisler (1968), Morine (1969).

It was thus decided as appropriate to develop a three-fold typology construct for 'specific teaching procedures', consisting of the three types 'expository', 'guided discovery', and 'activity' (see Table 4).

Table 4. Typology construct used for the study for the classification of Specific Teaching Procedures

Type No.	Name	Characteristics
1.	Expository	Emphasis on verbal discourse, on pupils acquiring specified knowledge and skills; progress ascertained by regular testing of retention of content and skills; stress on the following of indicated, demonstrated methods.
2.	Guided Discovery	Emphasis on learning by doing; time given for independent learning; pupils allowed to try out a variety of indicated methods. Pupils solve problems and search for answers to posed questions to gain skills and knowledge.
3.	Activity	Emphasis on pupils following own choice, interests and needs; very little or no teacher exposition; pupils' work and choice of activity undirected; high freedom for movement and activity change.

Analysis procedures

Analyses were performed using the programme known as the Statistical Package for the Social Sciences (SPSS). Details regarding distributions for the sample were obtained first. Calculations of significance of relationships between variables involved use of the chi-square (χ^2) statistic. Principal components analyses, using varimax rotation, were carried out on data from the 'specific teaching procedures' section of the questionnaire.

Findings on Teaching Procedures

(i) General teaching procedures

In Section Four of the questionnaire (see Appendix), respondents were asked, in relation to five items, which statement alternative in the item most clearly described their current approach in general teaching procedures. Each item had at least one alternative which operationalised the three delineated categories of directiveness in general teaching procedures.

On all items, with the exception of the item about the use of physical punishment, the majority of teachers chose that alternative which represented the 'high' directiveness category of general teaching procedures, see Table 5.

Table 5. Percentage of teachers in each category of directiveness on the five general teaching procedures

General teaching procedure	Category of directiveness						
	High		Moderate		Low		N
	%	N	%	N	%	N	
Setting classroom rules & regulations	63.6	103	36.4	59	0.0	0	162
Time given prescribed skills/information	57.5	92	40.6	65	1.8	3	160
Use of physical punishment	0.6	1	79.7	130	19.6	32	163
Separation of disrupter	80.1	129	9.9	16	9.9	16	161
Supervision to maintain order	71.2	116	28.8	47	0.0	0	163

As shown in Table 5, on items 1 and 5 the alternative representing 'low' teacher directiveness was not chosen by any respondents. For all items a comparatively low percentage of teachers chose that alternative representing 'moderate' teacher directiveness. The use of pupil-teacher discussion and/or consensus in general teaching procedures appears not greatly favoured, except in the case of item 1. These findings are similar to those reported by Taylor (1975), mentioned earlier.

Analyses of significance in relationship were performed to see if there was a tendency for respondents who were 'high' on one item, to be also 'high' on other items (see Table 6).

Table 6. Percentage of teachers 'high' in directiveness on more than one general teaching procedure

Procedures	Teachers 'high' for both items		χ^2
	%	N	
Rule setting and time for skills	39.0	62	(not meaningful)†
Rule setting and use of physical punishment	19.8	32	(not meaningful)†
Rule setting and separation of disrupter	55.3	89	11.97**
Rule setting and supervision to maintain order	50.6	82	7.87**
Time for skills and use of physical punishment	11.0	24	(not meaningful)†
Time for skills and separation of disrupter	48.1	76	(not meaningful)†
Time for skills and supervision for order	41.3	66	(not meaningful)†
Use of physical punishment and separation of disrupter	20.5	33	7.31 n.s.
Use of physical punishment and supervision for order	19.6	32	1.26 n.s.
Separation of disrupter and supervision for order	63.4	102	21.47**

* = significant at .05 level; ** = significant at .01 level; n.s. = not significant;
† = numbers in some categories in the analysis too small for meaningful χ^2 to be calculated.

From Table 6 it can be seen that, except where the analysis included the item on physical punishment, 39 percent or more of respondents chose the 'high' alternative on both items in the calculation.

From the practical viewpoint these results have the implication that the possible existence of such a consistency in teachers' procedures for general classroom management might need to be taken into account when advising and helping practising teachers. From the theoretical viewpoint these findings appear to lend support to the notion of an overall "style" in a primary school teacher's teaching.

(ii) Specific teaching procedures

Investigation of whether teachers consistently use procedures of the three postulated types 'expository', 'guided discovery' and 'activity' across different subject areas was undertaken in Section Five of the questionnaire (see Appendix). Nine questions were used, each asking whether or not a teacher used the behaviour described for eight different subject areas. Three questions represented each of the three types.

The findings show noticeable variations across different subject areas. Table 7 reports the results for three questions, one for each of the categories, 'expository', 'guided discovery' and 'activity'. The items reported in Table 7 are those for which the greatest variations were found across subject areas.

Table 7. Percentage of teachers indicating usage of three specific teaching procedures for different subject areas

Subject Area	Category of Procedures: Expository Item a.		Guided Discovery Item b.		Activity Item c.	
	%	N	%	N	%	N
Mathematics	97.5	157	10.0	17	22.4	36
Writing/Spelling	91.2	146	3.8	6	16.4	26
Reading	90.0	144	12.6	20	41.9	67
Physical Education	21.9	35	15.8	25	57.6	85
Natural Science	19.0	30	42.0	66	50.3	79
Social Studies	43.1	69	43.4	69	54.1	86
Expression	63.1	101	40.1	32	29.9	47
Art/Craft/Music	19.5	31	31.2	49	74.4	119

a. I hold regular sessions especially to check and/or test pupils' acquisition of subject matter and skills in:
b. Instead of directly explaining concepts and showing methods and techniques, I arrange activities and materials in the hope that pupils will work them out by themselves for MOST OF THE TIME IN:
c. Pupils may change seating/positions without my permission during activities/work in:

It can be seen from Table 7 that for the 'expository' item almost all teachers said they hold regular sessions to test or check acquisition of subject matter in Mathematics, Writing/Spelling, and Reading. However, less than 25 percent indicated they do so in Physical Education, Natural Science and Art/Craft/Music.

With regard to Natural Science, together with Social Studies, many more teachers claimed they use the 'guided discovery' procedure reported in Table 7. For these same two subject areas, over 50 percent of respondents said they use the 'activity' procedure reported in Table 7. Less than 25 percent, however, stated they use this procedure for Mathematics and Writing/Spelling.

These results suggest that variations do exist in procedures when teachers present content in different subject areas. This could be due to variations in teachers' attitudes towards the teaching of content from different areas, and/or to the way they perceive the structure and relevance of a particular subject area.

The findings are of importance when considering research which uses the construct of teacher-style. This is particularly the case with reference to primary school teachers each of whom is responsible for teaching pupils a wide range of subject matter. The lack of consistency in results of studies in

relation to primary teaching, and based on teacher-style constructs, may be largely due to a failure in the past to consider the effect, on teaching procedures used, of important contextual factors such as the subject matter being taught.

The found variation in teacher behaviour across subject areas also has many practical implications. In particular, it may be the case that desired instructional changes for a subject area might not necessarily occur merely because of changes in syllabus rationale and content information. Attitude change and/or suggested methodology and specification in procedures might be required.

In order to investigate further whether the responses given by teachers in this section substantiate the suggestion that teachers tend to view, and thus teach, the various subject areas differently, principal components analyses were carried out on all nine listed behaviours in this part of the questionnaire (see Table 8).

In Table 8 it can be seen that the subjects Mathematics, Writing/Spelling and Reading tend to cluster together in one component on all items except item 5. On this item the varimax loadings do not appear to indicate the above definite clustering of subjects into a particular component. This suggests a lack of marked variation on this item between teachers. This was particularly apparent for Writing/Spelling where 99.4 percent indicated usage of the procedure. Hence as there was so little variance, this variable was removed from the component analysis. Despite this anomaly, the clustering together of Mathematics, Writing/Spelling and Reading, on all but this one item suggests that teachers tend to use procedures similarly for these subjects. These subjects might be termed 'basic skill' subjects or 'essential school task content areas'.

Table 8 also shows that on all specific teaching procedures items the subject areas Natural Science, Physical Education/Health, Social Studies, and Art/Craft/Music cluster together in one component. This again suggests a tendency for teachers to use procedures similarly for these particular subjects. These subjects might be termed 'non-basic skill' subjects.

However, it needs to be noted that Social Studies, on items 2, 3, 4 and 5, is clustered with both analysed components. Also, the subject area Oral/Written Expression does not consistently cluster with either of the two groups mentioned. On items 2, 3, 5, 6 and 9 it clusters with 'basic skill' subjects. Yet it is grouped with 'non-basic skill' subjects on item 1, 7 and 8. On item 4, Expression and Social Studies comprise one component on their own, with Reading clustered with them, as well as with component three. These results suggest that, in the case of Social Studies and Oral/Written Expression, teachers do not appear to use certain teaching procedures as consistently as is apparent for Mathematics, Reading, and Writing/Spelling on the one hand, and Natural Science, Physical Education and Art/Craft/Music on the other. The findings with regard to item 9 are relevant here. Although Mathematics and Reading consistently cluster with Writing/Spelling on all items, it can be seen in Table 8 that they group into both analysed components for item 9, along with Natural Science and Art/Craft/Music. This suggests that, for the procedure of setting aside time in school hours for question seeking, the responses of teachers do not indicate a clear difference between subjects in the employment of this procedure. It could be argued that this is because some subjects, notably Social Studies and Oral/Written Expression, are not clearly delineated in teachers' minds as 'basic skill' or 'non-basic skill' subjects. However, it could also be argued that, for some teaching procedures, teachers simply prefer not to use that procedure, regardless of the subject being taught.

From the results in Table 8 and the discussion above, it can be concluded that there is some evidence

Table 8. Results of nine principal components analyses of 'specific' teaching procedures.

Specific teaching procedure item	Subject	Varimax loading and percent of variance for obtained components			
		Comp. 1*	% var	Comp 2*	% var
1. Pupils work is based on undirected choice most of the time in.....	Mathematics	0.15		0.89	
	Writing/Spelling	0.09		0.69	
	Reading	0.22		0.47	
	Physical Education	0.34	31.9	0.19	17.0
	Natural Science	0.69		0.00	
('activity' item)	Social Studies	0.79		0.19	
	Expression	0.41		0.15	
	Art/Craft/Music	0.27		0.06	
2. Pupils may change seating/position without permission in.....	Mathematics	0.77		0.11	
	Writing/Spelling	0.69		0.20	
	Reading	0.62		0.26	
	Physical Education	0.28	48.0	0.50	16.5
	Natural Science	0.24		0.79	
('activity' item)	Social Studies	0.35		0.73	
	Expression	0.63		0.35	
	Art/Craft/Music	0.07		0.68	
3. Some time is set aside each week in school hours, for undirected independent work/activities outside the classroom in.....	Mathematics	0.50		0.31	
	Writing/Spelling	0.52		0.01	
	Reading	0.64	43.4	0.26	13.8
	Physical Education	0.12		0.47	
	Natural Science	0.19		0.78	
('activity' item)	Social Studies	0.53		0.51	
	Expression	0.57		0.28	
	Art/Craft/Music	0.63		0.33	
4. I hold demonstration and practice sessions in specific skills and subject matter in.....	Mathematics	0.15		0.05	
	Writing/Spelling	0.14		0.14	
	Reading	-0.04		0.38	
	Physical Education	0.66	37.4	0.06	17.7
	Natural Science	0.65		0.29	
('expository' item)	Social Studies	0.50		0.51	
	Expression	0.19		0.82	
	Art/Craft/Music	0.66		0.03	
On this item a third component was obtained: Percent of variance = 12.7% - varimax loadings ≥ 0.30 were calculated for: Mathematics = 0.73; Writing/Spelling = 0.54; Reading = -0.44					
5. I show, explain and expect pupils to follow indicated methods in...	Mathematics	0.00		0.08	
	Writing/Spelling	had to be removed from analysis because basic co-efficient could not be computed (see discussion)			
	Reading	0.35		0.13	
	Physical Education	0.40		0.28	
	Natural Science	0.43		0.72	
('expository' item)	Social Studies	0.57	42.3	0.63	15.0
	Expression	0.89		0.04	
	Art/Craft/Music	0.56		0.26	
6. I hold regular sessions especially to check and/or test pupils' acquisition of subject matter and skills in.....	Mathematics	-0.03		0.59	
	Writing/Spelling	0.06		0.38	
	Reading	0.05		0.37	
	Physical Education	0.72	35.4	0.16	18.1
	Natural Science	0.79		0.08	
('expository' item)	Social Studies	0.59		0.08	
	Expression	0.28		0.40	
	Art/Craft/Music	0.83		0.04	
7. Instead of directly showing, explaining concepts I arrange activities/materials in the hope pupils will work them out for themselves in...	Mathematics	0.20		0.56	
	Writing/Spelling	0.07		0.62	
	Reading	0.22		0.51	
	Physical Education	0.35	39.3	0.28	15.5
	Natural Science	0.83		0.19	
('guided discovery' item)	Social Studies	0.82		0.16	
	Expression	0.44		0.11	
	Art/Craft/Music	0.56		0.28	
8. I encourage pupils to try out and experiment with a variety of suggested methods in.....	Mathematics	0.26		0.56	
	Writing/Spelling	-0.01		0.34	
	Reading	0.23		0.50	
	Physical Education	0.37	36.7	0.21	16.2
	Natural Science	0.67		0.18	
('guided discovery' item)	Social Studies	0.75		-0.01	
	Expression	0.58		0.22	
	Art/Craft/Music	0.62		0.17	
9. Some time is set aside for pupils to seek for themselves anwers to questions	Mathematics	0.54		0.33	
	Writing/Spelling	0.71		0.18	
	Reading	0.43		0.50	
	Physical Education	0.60	52.6	0.22	13.0
	Natural Science	0.31		0.73	
('guided discovery' item)	Social Studies	0.22		0.93	
	Expression	0.81		0.24	
	Art/Craft/Music	0.59		0.38	

* loadings ≥ 0.30 are underlined and considered in the discussion and interpretation of results (*cf.* Brislin *et al.* 1973, p. 281.)

to suggest that indicated variations in the use of teaching procedures in different subjects might be based on a preferred mode for teaching certain subjects and/or on an attitude held regarding their structure, value or relevance.

Summary and Conclusion

The results from this study's investigation of general teaching procedures showed that a high percentage, and for most items a majority, of respondents stated they employ general teaching procedures in the category 'high' directiveness. Further analysis of these data showed that teachers tend to be consistent in their usage of general teaching procedures. Those respondents who were 'high' on one item, tended to be the same on other 'general' teaching procedure items.

The fact that so many teachers chose the 'high' category alternative on general teaching procedure items could thus indicate the existence of a fairly prevailing overall approach by primary school teachers in their general teaching procedures. This lends support to the notion of the existence of a "style" in a primary school teacher's approach.

The consistency in behaviour found for general teaching procedures items was not, however, apparent in the section on 'specific' teaching procedures. The results from analysis of these data suggest that teachers tend to change their strategies when teaching different subject areas. In addition, these results indicate a consistent pattern in responses, suggesting that many primary school teachers appear to use certain behaviours when teaching subject areas such as Mathematics, Reading and Writing/Spelling, yet use different procedures when teaching other subject areas such as Natural Science and Art/Craft/Music.

These findings have important implications of both a practical and theoretical nature. From the practical point of view, these results might indicate a widespread consistent variation in teacher-held attitudes towards the teaching of different subject areas. If this is the case, then attitude change may be required for the implementation of desired teacher behaviour in relation to the instruction of certain content.

The theoretical implications of the results are no less important than the practical. In particular they draw attention to the question of the appropriateness of teacher-style constructs for investigating and referring to primary school teaching. The consistency of response in this study's section on general teaching procedures appears to lend support to the suitability of using such constructs when referring to a primary school teacher's general classroom management behaviours and strategies. However, the variation found in responses when teachers indicated which procedures they use for teaching different subject areas brings into question the applicability of teacher-style constructs to describe a primary school teacher's overall teaching behaviour. The findings suggest that teachers use a variety of styles. The variations found in responses in the specific teaching procedures section follow a consistent pattern in relation to subject areas. This could be due to teacher-held attitudes about the best way to teach and learn, and/or to the perceived structure and relevance of, different subject areas.

The continued use of teacher-style constructs to describe primary school teachers' overall teaching behaviour, and as a framework in which to offer advice, may have little empirical foundation.

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APPENDIX

SECTION FOUR - GENERAL TEACHING PROCEDURES

In the following sets of statements, please place a circle around the number alongside the *ONE* statement which *MOST NEARLY DESCRIBES YOUR CURRENT APPROACH.*

1. MOST of the classroom rules and regulations are:
   a. Set and explained by me 1
   b. Set entirely from pupil suggestions 2
   c. Set *AFTER* pupil-teacher discussion and consensus 3

2. Work in skills and information acquisition is:-
   a Undertaken only when pupils request or choose to do it 1
   b. Prescribed by me for less than 1 hour daily (on the average) 2
   c. Prescribed by me for one to two hours daily (on the average) 3
   d. Prescribed by me for over two but less than three hours daily (on the average) 4
   e. Prescribed by me for three or more hours daily (on the average). 5

3. In maintaining classroom order:
   a. I never use physical punishment 1
   b. I rarely use physical punishment 2
   c. I occasionally use physical punishment 3
   d. I frequently use physical punishment 4

4. I separate a disrupting pupil from the mainstream of activity/groupings(s):
   a. In most cases when I consider it necessary 1
   b. In most cases after the pupil himself requests it 2
   c. In most cases after other pupils request it 3
   d. In most cases after the entire class and I have openly discussed the problem together and agreed to try it as a solution 4
   e. Never 5

(Continued)

5. To maintain a satisfactory classroom environment:

   a. I mostly supervise the boundaries of behaviour 1

   b. The pupils mostly supervise amongst themselves the boundaries of behaviour 2

   c. The boundaries of behaviour are supervised about equally by me and by the pupils amongst themselves 3

** ** ** ** **

SECTION FIVE ~ SPECIFIC TEACHING PROCEDURES

Please circle in *EACH* column the applicable letter for "yes" or "no" (i.e., "Y" or "N") against *EACH* statement. In each case, please answer as it applies to your *CURRENT* teaching procedures.

TEACHING PROCEDURES	AREAS IN CURRICULUM													
	Maths		Hand-writing spelling		Reading		Phys.Ed. Health		Natural Science		Social Studies		Oral/ Written Exp.		Art, Craft, Music	
1. Pupil's work is based on undirected pupil choice for *MOST OF THE TIME* given to:	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
2. Pupils may change seating/position without my permission during activities/ work in:	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
3. Some time is set aside each week in school hours for undirected independent work/activities outside the classroom in:	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
4. I hold demonstrations and practice sessions for pupils in specific skills and subject matter in:	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
5. I show, explain and expect pupils to follow indicated methods and techniques for *MOST OF THE TIME* given to:	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
6. I hold regular sessions especially to check and/ or test pupils' acquisition of subject matter and skills in:	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
7. Instead of directly explaining concepts and showing methods and techniques, I arrange activities and materials in the hope that pupils will work them out by themselves for *MOST OF THE TIME* in:	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
8. I encourage pupils to try out and experiment with a variety of suggested methods and techniques in:	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
9. Some time is set aside in school hours for my pupils to seek for themselves answers to difficulties and questions posed by me or that arise from their experiences, in:	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N

ATTITUDES TOWARD THE PRIMARY SCHOOL CURRICULUM AND THEIR POSSIBLE RELEVANCE FOR FUTURE EMPLOYMENT AND UNEMPLOYMENT EXPERIENCES

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From a humanitarian perspective, one of the most serious social crises of modern times in the convergence of rapidly increasing rates of youthful unemployment with growing adherence to a "work ethic" which devalues all leisure activities which are not economically motivated.

At the turn of this century, members of the English nobility took a very different view of leisure time than the one most people adhere to today. John Lubbock (Lord Avebury), for example, wrote that: "The advantage of leisure is mainly that we may have the power of choosing our own work" and Bertrand Russell, his fellow peer, noted that: "To be able to fill leisure intelligently is the last product of civilization" (Evans, 1978). But in 1971 the overwhelming majority of a representative sample of employed middle-class Americans aged 46 to 71 reported having no use at all for leisure time. About 90 percent of the men and 80 percent of the women said they would go on working even if they did not have to work for a living. They had no leisure interests (and could think of none that they might take up) which afforded them as much satisfaction as working did and they did not even favour shorter working hours for this reason (Pfeiffer and Davis, 1971).

In Australia, as well, a study of unemployed youth showed that they spent less time in educational (e.g., reading newspapers), recreational (e.g., movies, playing sport), and social (e.g., going out with friends) leisure pursuits than their employed peers, despite the fact that these latter had only their evenings and weekends to devote to leisure-time activities (Turtle in Winschuttle, 1979). The serious question implicated by these observations is whether society which has denied these youth access to gainful employment is also being so "uncivilized" (to use Russell's analogy) as to deny them the attitudinal and material means for making constructive, self-respecting, and self-developing use of their extended non-work time.

The present day crisis over the retirement of older workers can also be attributed, in part, to the same inherent contradiction of a society which values paid work ahead of all other aspects of human endeavour at the same time denying many of its members the right to hold jobs. Statistics compiled in the U.K. show that the highest rate of male suicides occurs during the twelve months between age 65 and 66 when enforced retirement occurs (Hobman, 1978). Similar statistics led to Congressional legislation abolishing mandatory retirement in the U.S.A. (Ossofsky, 1978). But this solution can only further disadvantage the young unless more jobs are simultaneously created. This is unlikely. Indeed, present trends suggest that the reverse is occurring, and that as a result of labour surpluses and technological advances, the children who are in school today will encounter greatly reduced working hours, pervasive unemployment, or both for most of their adult lives.

The only other viable solution seems to be alteration of those attitudes which dispose people to devalue leisure time and leisure pursuits. Some provocative suggestions in this regard were raised in Canberra at the National Seminar on Leisure in 1974 and at the Academy of Social Sciences Symposium in 1977. At the former, Gebhardt suggested that: "Nothing short of a complete reversal in the attitudes of

educational administrators, curriculum planners and teachers is ever going to lead to a situation where the provision of appropriate leisure activities within schools and other educational structures is made. . . . Schools have not equipped the great mass of our people with the resources or attitudes suitable for the continuing and self-sustaining use of leisure time." (Gebhardt, 1974). At the latter, Musgrave highlighted questions of what to include in educational programmes in preparation for "unemployed"time and the difficulties encountered in the implementing such programmes. One of the most formidable difficulties discussed by Musgrave is community attitudes towards such programmes. He suggested that, "Present social attitudes towards education in Australia are very instrumental in nature." (Musgrave, 1977). He noted that communities see the purpose of schooling as preparation for work and that previous attempts at "liberalization" of curricular offerings have met with considerable resistance from outside the schools.

While these authorities have drawn attention to the resistance from school teachers and administrators and from the community at large twoard re-orienting the school curriculum around leisure-time rather vocational perparation, another attitudinal obstacle may come from children themselves. The purpose of the present study was therefore to explore pupils' attitudes towards subjects in their school curriculum and to draw from these comparisons some predictions concerning these childrens' ability to make profitable use of extended nonwork time during their adult lives. The underlying thesis guiding this research is that, in order for an individual to become involved with a subject matter area as a satisfying and self-developing leisure interest, three separate factors must converge together upon that subject: (1) the person must enjoy the subject, (2) the person must feel competent in the rudimentary skills it involves, and (3) the person most perceive some utility or social value in the subject or its resultant products. Though these three factors are probably also desirable for work, they are not essential. If paid enough, most people will do things they don't particularly enjoy, and payment itself confers both value and a sense of the worker's own competence at the activity.

Thus, if childrens' attitudes dispose them towards productive future leisure interests, there should be subjects in the school curriculum for which a convergence among these three dimentions is observed. The absence of any convergence, on the other hand, would suggest that the same attitudinal barriers which previous work has shown inhibit both adults' constructive use of their own leisure time and their orientation of the goals of schooling toward childrens' futures of leisure are already beginning to be set up among young children in primary school.

METHOD

A questionnaire was administered to children in Grades 3-7 in a large metropolitan primary school in Perth. The number of boys and girls tested in each grade is indicated in Table 1.

Table 1

Grade	Boys	Girls
3	21	11
4	30	37
5	36	32
6	43	39
7	42	38

The questionnaire consisted of three questions in the following order: (1) Which is your favourite subject in school? (2) Which subject do you do the best work in at school? (3) Which subject do you think is the most important one at school? Above these three questions were listed the eleven subjects which were currently being offered in the school. These subjects (in the order listed) were science, art, spelling, reading, sport, crafts, health, music, creative writing, maths, and social studies.

The questionnaire was administered by teams of 4-5 second-year teacher trainees under the direct supervision of the first author. Each child received a copy of the questionnaire to fill-in. One of the teacher trainees then drew the childrens' attention to the list of school subjects at the top of the questionnaire. The teacher trainee then read each question aloud while the children read it silently. After each question was read aloud, there was a pause during which the children were requested to write in their answer while the team of trainees circulated in the room, making sure all children understood and answered the question.

RESULTS

Responses to the three questions were tabulated by sex, grade level and for all the children tested. Totals for the eleven school subjects were then converted to rank orders and Spearman Rank Correlation Coefficients (r_s) were calculated.

The correlations between the grouped responses of all children tested to each of the three questions are indicated in Table 2. None of the correlations were significant.

Table 2

r_s preference / value	-.30	p .05
r_s preference / competence	.41	p .05
r_s value / competence	.28	p .05

This indicates that there was no overall relationship between childrens' preference (most favourite) for the eleven school subjects and their judgments of either the perceived value of these subjects (importance) or their perceived competence (best work) in the subjects. Furthermore, while the correlations between perceived competence and perceived value and between competence and preference were nonsignificant but positive, the correlation between preference and value was in the negative direction, suggesting a trend towards opposition between these latter two concepts.

The nature of these relationships may be clarified by an examination of Figure 1, which shows the total number of choices of each subject by all children in response to the three questions. It should be noted that with the exception of maths, the most preferred subjects, i.e., sport, art and music had relatively low perceived values. On the other hand, subjects with high perceived value, i.e., reading, spelling, and health, were not highly preferred. Although maths was the third most preferred subject, judgments of perceived value were more than twice as great as preference judgments. Overall, numbers of choices of the other subjects were low. For science and social studies, perference and perceived value were about equal, whereas, for craft, preference far outweighed perceived value. All that can be said for creative writing is that it is neither very much liked nor perceived to be of any particular importance.

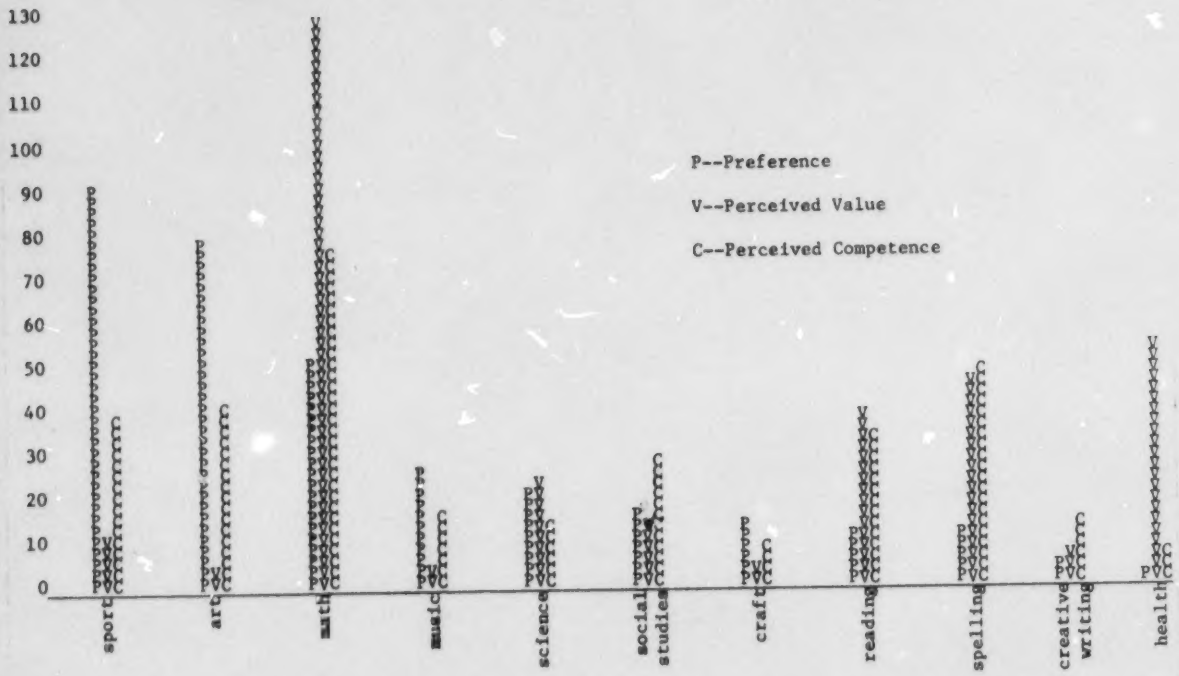

Figure 1: Judgments of preference, perceived value, and perceived competence by children in grades 3-7 for 11 school subjects.

There were some changes in preference and value judgments with changes in grade level. Table 3 shows that although, in most grades the same nonsignificant correlation was found between preference and value, in Grade 5 a significant negative correlation was observed. In other words, these children strongly preferred areas they did not believe to be important, whereas, subjects they believed to be important were not liked.

Table 3

	Grade				
	3	4	5	6	7
r_s preference / value	.23	-.25	-.59*	-.04	-.20
r_s preference / competence	.74*	.45	.18	.50	.60*
r_s value / competence	.26	.22	.31	.52	.40

* p .05

Table 4 indicates changes in preference and perceived value for each subject relative to grade level. There are only three notable changes relative to grade level. Preference for sport increases with grade level, whereas, preference for art and math decline markedly. In relation to perceived value, there appear to be no systematic variations with increasing grade level. This suggests that the relative value children learn for different school subjects are learned early in their school careers. Figure 1 also shows that there is no systematic relationship between perceived competence and the other two judgments for any of the subjects, as suggested by the rank order correlations shown in Table 2. High perceived competence rankings are associated with high preference (sport and art) and with high value judgments (reading and spelling). Table 3, however, shows that there are significant positive correlations between preference and perceived competence in Grades 3 and 7. That is, for some children there is definitely a tendency to feel competent at what they like or vice versa.

	Grade				
	3	4	5	6	7
SPORT	9	15	32	33	34
ART	47	37	25	15	14
CRAFT	0	8	6	4	5
SPELLING	9	0	0	6	6
READING	3	0	3	10	4
HEALTH	0	0	0	1	0
SCIENCE	0	11	3	4	11
MUSIC	6	2	13	7	8
MATH	25	26	13	15	6
SOCIAL STUDIES	0	2	3	5	12
CREATIVE WRITING	0	0	1	1	0

a. Preference

SPORT	3	2	0	0	9
ART	0	2	1	0	0
CRAFT	0	0	1	0	1
SPELLING	15	12	15	20	11
READING	3	14	10	17	15
HEALTH	15	29	16	12	9
SCIENCE	6	9	6	8	5
MUSIC	3	0	1	0	0
MATH	53	25	43	35	43
SOCIAL STUDIES	1	5	3	6	5
CREATIVE WRITING	0	3	3	1	1

b. Perceived Value

Table 4: Percentage of choice of each subject relative to grade level.

The generality of the above group results to the responses of individuals was tested by examining the pattern of responses of each child in Grade 6. Of the 65 children in this grade, only two selected the same subject as most preferred, most important, and their most competent one, fully supporting the conclusion from the group results that these dimensions each draw out different subject choices.

Rank order correlations were also calculated for boys and girls judgments of preference, value and competence. The correlation between boys and girls judgments of preference was .76; of perceived value, .92; and perceived competence, .79. All three correlations are significant at the .05 level of confidence suggesting that the judgments of boys and girls in relation to school subjects are very similar. However, a few differences may exist. Detailed comparisons showed that there were virtually no discernible differences in judgments of perceived value between boys and girls. In relation to preference, boys showed a relatively greater liking for sport and science than girls. Girls showed a relatively greater preference for music than boys. There were no notable differences in judgments of competence except in spelling, where many more girls expressed a feeling of competence than boys.

DISCUSSION

The results of this study suggest that children hold conflicting attitudes towards major areas of the school curriculum. For only three out of eleven school subjects were judgments of preference and perceived value not in direct conflict with each other. For these three subjects, i.e., science, social studies, and creative writing, the level of response was low enough to be some cause for concern about childrens' general interest and activity in these subjects, anyway. The level of response to music and craft was no higher. However, the difficulty of increasing childrens' interest and activity in these areas is likely to be compounded by the indication that while children may like these subjects to a degree, they also believe them to be of virtually no importance or social value.

The difficulties in relation to the other school subjects are magnified by the increased level of response which suggests that children in general have very strong, albeit conflicting attitudes about these subjects. An interesting case in point is the subject of health. Children appear to attach a surprising degree of importance to this subject and yet manifest no liking for it at all. Since we can think of no appeal or lack of appeal inherent in the subject itself, we can only wonder if their dislike for this subject may relate to the manner in which it is taught.

The subjects, math, spelling, and reading present similar difficulties. The level of importance attached to all these subjects far exceeds any preference for them. The relatively high preference for math may be explained by a process which was also noted to a lesser extent with spelling and reading. As part of this study, preferences for school subjects were also elicited from children in Grades 1 and 2. In these grades, it was found that reading and math were two of the most preferred subjects. Table 4a. indicates that by Grade 3 reading has declined to a very low level of preference and that math has also begun to decline in preference and continues to do so up to Grade 7. It is tempting to suggest that this simply represents a shift in interests from academic to nonacademic subjects with increasing age. However, it was found that the two most preferred subjects in the upper grades, i.e., sport and art, were also two of the most preferred subjects in Grades 1 and 2. We wonder once again, if this decline in preference, is in any way related to the manner in which these subjects are taught.

Why are these subjects considered to be so important? The obvious answer is that they are seen to belong to Musgrave's (1977) "instrumental" value category. And, in fact, informal interviews with some of the children in the study suggested that the reason they thought these subjects were so important was "so that you could get a job." This is an attitude which is conveyed to children both directly and indirectly by most elements of society. Parents stress the importance of math, reading and spelling for future employment, as do teachers, principals, politicians and employers. Television, newspapers, and books reinforce the impression. And, according to Eisner (1979) these messages are communicated in less direct, but perhaps, equally powerful, ways through school policy, for example, in the frequency and time-tabling of different subjects.

How available , then, are math, spelling, and reading as activities for leisure or nonwork time? We can only conclude, not very. The appeal of these subjects appears to be based on their ability to get one a job and presumably their usefulness in the job. If the young person does not have a job, then how useful or appealing will these subjects appear to be. Are young people likely to turn to them for leisure-time activity? Their relatively low preference and competence ratings suggest not.

What about the remaining subjects, sport, art, and music? These subjects command a relatively high

degree of preference among most children. Reasons for this preference are not difficult to find. All three areas appear to have strong innate appeal to people generally. In addition, they generally constitute a break in the structure and routine of school or provide the opportunity for much-needed physical, nonverbal activity. Competitive assessment may also be applied less in these areas, and free choice much more. In the case of sport and music, cultural and media support are also widespread.

Nor is the lack of social importance or value which children attach to these subjects difficult to understand. These subjects are traditionally viewed as leisure activities and of little or no relevance to work. Since work is traditionally a much more important activity than leisure, children will learn that these subjects are relatively unimportant.

We must question the relationship between this attitude and the appeal or lack of appeal of these subjects as activities for nonwork time. It could be argued that the lack of value attached to these subjects because of their presumed irrelevance to work should have little effect on their appeal as nonwork time activities. We would argue that this may be true in the traditional situation where most of a person's time is taken up with work activities and only a small proportion of time is devoted to leisure. Such a situation may even enhance the value of leisure activities through sheer contrast. However, when most or all of one's time is leisure or nonwork time, the same may not be true. If all of a person's time is nonwork time, it seems unlikely that the person will turn to low-valued activities very often, even when the activities are inherently enjoyable.

Studies of leisure and unemployment suggest that people tend to fill in their leisure or nonwork time with rather passive, even nonproductive activities. In the past, this may have been of less concern since most people spent most of their time at work. However, if today's school children are to be faced with greater periods of nonwork time to fill in, it is important for us to consider how they will be spending that time. The suggestion of this study is that they are unlikely to be filling in that time with useful, productive, or self-fulfilling activities, such as sport, art, craft, reading, or writing, which generally cost relatively little, and, according to Argyle (1974) encourage the same important sorts of progressive developmental change during adulthood as employed workers have available through constructive and productive work activity.

One implication of this study is that we may want to begin to change childrens' attitudes towards school subjects to increase the social importance of leisure in general and those subjects which lend themselves well to constructive leisure activity in particular. Alternatively, it might be possible to increase enjoyment of the subjects which are already seen as socially important. Various ways for doing this suggest themselves. We might, for example, alter the frequency and timetabling of school subjects so that they are seen as more equivalent in importance. We might begin to include something equivalent to "career education" but aimed at leisure activity instead (e.g., adults coming to school to explain their leisure interests and why they enjoy them). We might also alter the content of school subjects to include knowledge and skills which would be more clearly useful in nonwork time. We might even change the curriculum substantially. For example, it has been suggested (Barrow, 1976; Smith, 1980) that the first few years of schooling could be devoted to intensive development of basic literacy and numeracy skills and other subjects introduced thereafter. Or we might borrow Gebhardt's (1974) suggestion when he said, "I should like to see the whole range of arts, crafts and leisure activities becoming the integrating centre from which radiate all the other things that are taught."

None of the above can, of course, succeed in isolation. As Fitzgerald (1974) and Musgrave (1977)

have suggested, societal and community attitudes and responses to such changes will exert a major influence on their shape and future. However, all of this depends on whether the school and society are prepared to accept unemployment as a fact of life for many people for much of their adult life. If so, major changes in attitudes toward work and nonwork must occur. School may have to prepare children for a broader rather than a narrower range of possibilities. Jobs in which math and spelling are the prime prerequisites may become few and far between. And the fact that the same sort of attitudinal conflicts which may inhibit adults' productive use of leisure time appear to be set up as early as Grade 3 becomes a matter for serious social concern.

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THE FORMATION OF EDUCATIONAL AND OCCUPATIONAL ASPIRATIONS IN ADOLESCENTS - an empirical study

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I INTRODUCTION

Primarily, this study is concerned with the process of the formation of occupational and educational aspirations in secondary school students. The two main aims are firstly, to investigate the relationships for secondary school students between occupational and educational aspirations (as dependent variables) and determination to achieve academically, locus of control and academic self concept (as independent variables); and secondly, to study these relationships and their fluctuations in the context of differences between students in sex, social status, age and achievement.

This study of occupational and educational aspirations has been conducted against a background of a small number of related, but different studies concerning the occupational and educational attainment process in Australia. In contrast, occupational and educational aspirations have been extensively studied in the U.S.A.. However, level of occupational aspiration and level of educational aspiration as conceptualised here, and measured in four aspects a realistic short term choice, a realistic long term choice, an idealistic short term choice and an idealistic long term choice, have not been extensively studied in relation to all the variables used in this study with the one set of data, either in Australia or in any overseas country. A further unique feature of this study is that the measuring instruments are analysed not with traditional item analysis, but with a Rating Response Measurement Model only recently developed (Andrich, 1978a).

There have been substantial rises in unemployment in Australia during the years 1975 to 1979 and it appears that the trend will continue, at least in the near future, and possibly remain as a feature of future societies. The government, unions, educational decision makers and the community in general, have expressed concern about employment, school-work transition and vocational development. This has drawn attention to the lack of knowledge and understanding in these areas in general, and of occupational and educational aspiration formation, in particular. These latter variables are important because they are good indicators of later educational and occupational attainments. Because of this, and because of the shortage of appropriate research in Australia, a study which focusses on factors influencing the occupational and educational aspirations of adolescents should be of value at this time.

II METHODS

The student sample from whom the data were collected and subsequently analysed, comprised 844 secondary school students from four schools in Perth, Western Australia. These schools were chosen primarily to ensure variability in social status. However, some variability in age, sex and achievement was also sought in so far as this could be arranged at each particular school.

The 844 students - 242 Year 8&9 girls, 252 Year 10&11 girls 179 Year 8&9 boys and 171 Year 10&11 boys - participated in the data gathering during November 1978. Students ranged from 13 years old (Year 8) to 16 years old (Year 11). The four schools were firstly, a government secondary school drawing from a middle and upper class socio-economic area (Sanders, 1973:22-25); secondly, a government secondary school drawing from a mixed socio-economic area; thirdly, a government secondary school drawing from a low socio-

economic area; and fourthly an independent Protestant church sponsored secondary school for girls whose students are from a wide intake area, including the country areas of Western Australia and are of mixed socio-economic background with a bias towards the middle/upper class.

The initial analysis of the data was guided by the need to investigate the psychometric properties, and especially the dimensionality of the dependent and independent variable measures using the Rating Response Model (Andrich, 1978a). This is a recently developed measurement model which evolved from a simple logistic Rasch model (Rasch, 1960; Wright, 1977). Further utilisation of the model is made to follow important trends in the various aspects of the dependent variables by sex and age. Subsequent analyses utilise correlational and regression techniques and are guided by four main research questions. These are firstly, what is the relationship between the dependent and context variables, jointly and separately? Secondly, what is the relationship between the dependent and independent variables, jointly and separately? Thirdly, what is the relationship between the context and independent variables, jointly and separately? Fourthly, what is the overall joint relationship between the context, independent and dependent variables?

In this study, the dependent variables are level of occupational aspiration and level of educational aspiration. The definition of level of occupational aspiration used in this study is as follows:

> A student's level of occupational aspiration stands for an orientation to action with respect to a point or limited range of points on the occupational prestige hierarchy (Haller and Miller 1971:11). The temporal bounds of this range are set by the near and distant future, while the goal regional bounds are set by hopes and expectations (Haller, Otto, Meier, and Ohlendorf, 1974b:2). These are expression levels and goal periods and are of equal importance.

Level of educational aspiration is defined similarly, but involves educational levels instead of occupational prestige in its hierarchy.

Following Haller and Miller (1971) and Haller, Otto, Meier and Ohlendorf (1974), these social psychological variables are measured in four aspects. These are a realistic choice on leaving school or university, an idealistic choice on leaving school or university, a realistic choice projected to 30 years of age and an idealistic choice projected to 30 years of age. Occupational choices are scored according to an Australian occupational social status scale (Broom, Duncan-Jones, Lancaster Jones and McDonnell, 1977:103-111). Educational level choices are scored on a scale derived from conditions in Western Australia in 1978.

The three independent variables are Locus of Control, Determination to Achieve Academically and Self Concept of Educational Achievement. For Locus of Control, the definition used in this study is based directly on that developed by Rotter (1975:57):

> ...When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, change, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labelled this a belief in <u>external control</u>. If the person perceives that the event is contingent upon his own behaviour or his own relatively permanent characteristics, we have termed this a belief in <u>internal control</u>.
>
> (Rotter, 1966:1) (Underlining added)

From a number of reviews such as those by Gilmor (1978), Lefcourt (1976), Phares (1976) and Joe (1971), the choice of instrument was narrowed and Rotter's (1966) scale modified to a Likert format for pretesting, and further reduced to 26 items for the final data collection, is chosen for use in this study.

The second independent variable used in this study is Determination to Achieve Academically and it is defined as follows.

> A student's determination to achieve academically represents an orientation to action with respect to gereral academic achievement. This orientation involves the student's own perceptions of the demands, standards and completion of tasks that he sets himself in respect to this achievement within the bounds of the recent past and the present. It also involves his degree of industriousness in respect of this achievement, as he perceives others perceive him.

The final choice of instrument is eight items of the Pre-Tertiate Motivation Scale (Hermans, 1970) modified after pretesting.

The third independent variable used in this study is Self Concept of Educational Achievement and it is defined as follows:

> A student's self concept of educational achievement stands for his beliefs about his own general educational achievement in regard to the current educational levels available in Western Australia. These beliefs would form a range based on both temporal and regional bounds. The temporal bounds are set by the present and the near future, while the regional bounds are set by hopes and expectations.

Bloom (1976:93) reported that self concept scales aimed at general school achievement have a higher correlation with general school achievement measures than those aimed at a specific subject. This is probably due to the greater number of school experiences and judgements on which they are based and this has the important consequence of contributing to higher reliabilities for these scales. In line with this, a new scale based on general school achievement in Western Australia and involving the four aspects, realistic short term, realistic long term, idealistic short term and idealistic long term was developed through pretesting for this study.

In this study the context variables are sex, year of study, social status and achievement. Sex and year of study are acquired by simply asking the students to respond accordingly on the questionnaire. For social status, each student was asked to state his father's occupation together with further descriptions of it. This occupation was then classified according to the Australian Census and Classification List of Occupations (ACCO, 1971) and finally status coded on an Australian social status scale (Broom, Duncan-Jones, Lancaster Jones and McDonnell (1977; 103-111). The final context variable achievement, is a measure of general school achievement based on the results of four core subjects issued by the Board of Secondary Education. These subjects are english, mathematics, science and social studies and achievement in each is comparable on a state wide basis for Years 8,9 and 10.

III CONCLUSIONS FOR THIS STUDY

The conclusions of this study are presented in four parts corresponding to the four sections of data analysis. The first part deals with the Rating Response Measurement Model analysis of the dependent variables level of occupational aspiration and level of educational aspiration. The second deals with the

Rating Response Measurement Model analysis of the independent variables determination to achieve academically, locus of control and self concept of educational achievement. The third deals with the separate relationships between the context, independent and dependent variables and the fourth with the joint relationships between the context, independent and dependent variables.

During each of the four sections of data analysis, the students are divided into four groups - Year 8&9 girls, Year 8&9 boys, Year 10&11 girls, and Year 10&11 boys. The reason for this is that students within each group answered the questionnaire differently from students in the other groups, but students within each particular group answered the questionnaire similarly.

Dependent Variables and the Rating Response Model

The investigation of the dimensionality of the variable level of occupational aspiration, reveals that unidimensionality is only present with the Rating Response Model when two criteria are satisfied. These are firstly, that the students are divided into four groups for separate analysis - Year 8&9 girls, Year 8&9 boys, Year 10&11 girls, Year 10&11 boys; and secondly, that the occupational choices are scored in four status groups as shown below.

Lowest Status Group Occupation Examples

Railway ticket collector, postman, clothing or soft drink factory worker, storeman, metal furnaceman, waiter, hotel maid, bookbinder, bus conductor, service station attendant, labourer.

Second Status Group Occupation Examples

Beautician, photographer, truck driver, cabinetmaker, woolclasser, commercial traveller, bank teller, panel beater, railway stationmaster, aircraft mechanic, plumber, jewellery engraver, bricklayer, watch and clock repairer, taxi driver.

Third Status Group Occupation Examples

Meteorologist, teacher, surveyor, R.A.A.F. officer, real estate sales representative, pilot, musician, optometrist, computer programmer.

Highest Status Group Occupation Examples

Professor, dentist, architect, doctor, solicitor, engineer, diplomat.

It was found that the four occupational aspects, realistic short term choice, realistic long term choice, idealistic short term choice and idealistic long term choice are manifestations of the one underlying trait, level of occupational aspiration. Furthermore, each of the four groups of students - Year 8&9 girls, Year 8&9 boys, Year 10&11 girls and Year 10&11 boys, exhibits a pattern of responses in regard to the four occupational aspects which is similar within each particular group, but different from any of the other groups. The five main differences are firstly, that the empirical separation corresponding to the conceptual distinction between the four aspects, realistic short term choice, realistic long term choice, idealistic short term choice and idealistic long term choice is present only for the Year 8&9 girls. Secondly, Year 10&11 girls, Year 8&9 boys and Year 10&11 boys only empirically separate three of the four aspects - that is, the realistic long term and idealistic short term aspects are not empirically separated by the Year 10&11 girls, the realistic short term and idealistic short term choices are not empirically separated by the Year 8&9 boys, and the idealistic short term and realistic long term choices are not empirically separated the Year 10&11 boys. Thirdly, while the empirical separation of the conceptual distinction between the four aspects diverges at both ends of the level of occupational aspiration

continuum with increasing years at secondary school for boys, it only diverges at the high end of the level of occupational aspiration continuum for girls. Fourthly, for both the Year 10&11 boys and Year 10&11 girls, the realistic short term choice is empirically widely separated in status from the other choices so that only those students with the highest levels of occupational aspiration are likely to have high realistic short term occupational status choices. Fifthly, the idealistic long term choice is depressed for girls in comparison to boys, especially with the Year 10&11 girls.

As for level of occupational aspiration, the investigation of the dimensionality of level of educational aspiration, reveals that unidimensionality is only present with the Rating Response Model when two criteria are satisfied. These are firstly, that the students are divided into the same four groups for separate analysis; and secondly, that the educational levels are scored in three groups for the Year 8&9 girls and four groups for the others, as outlined below. Groups two and three are combined for Year 8&9 girls.

Score Group 1: Achievement Certificate (Year 10 level)

Score Group 2: Year 10 level plus Year 11 level or
Year 10 level plus a Technical Education Certificate or
Year 11 level plus a Technical Education Certificate

Score Group 3: Certificate of Secondary Education (Year 12 level) or
Year 12 level plus a Technical Education Certificate

Score Group 4: Tertiary institution level including pass degree, masters degree, Ph.d. and diploma

The four educational aspects realistic short term choice, realistic long term choice, idealistic short term choice and idealistic long term choice are manifestations of the one underlying trait, level of educational aspiration. Furthermore, each of the three groups of students Year 8&9 girls, Year 10&11 girls and Year 8,9,10&11 boys exhibit a pattern of responses in regard to the four educational aspects which is similar within each particular group, but different from any of the other groups. The main difference is that while the empirical separation of the conceptual distinction between the four aspects is present for the three groups, it is widest for the Year 8&9 girls and narrowest for the Year 8,9,10&11 boys, with the separation for the Year 10&11 girls lying between these two groups.

Independent Variables and the Rating Response Model

In summary, the investigation of the dimensionality of the variables determination to achieve academically and self concept of educational achievement, reveals that unidimensionality is only present with the Rating Response Model when the students are divided into the following groups for each variable respectively - Year 8&9 girls, Year 10&11 girls, Year 8,9,10&11 boys and Year 8&9 boys, Year 10&11 boys and Year 8,9,10&11 girls. For locus of control, unidimensionality is present for all the 844 students as a single group irrespective of sex or year at school. Furthermore, scale scores according to the model can only be calculated for determination to achieve academically when the response categories are ranked on a scale from zero to four, and for both locus of control and self concept of educational achievement when the response categories are ranked on a scale from zero to three.

With respect to the variable determination to achieve academically, these results mean that the four aspects of academic school work, setting high standards, working hard as perceived both by the student's perception of others' views of himself and by his own view of himself and completing given school work, are all manifestations of the one underlying trait determination to achieve academically. With regard to the other independent variables locus of control and self concept of educational achievement, the results are similarly interpreted. For locus of control, the eight aspects exemplified by the 26 items in the scale, "control" over personal plans, "control" over job promotion or success, belief in "luck" or "chance", "control" over government and politicians, "control" over school achievement, belief in personal worth, "control" over world affairs and influence on friends, are all manifestations of the one underlying trait, internal/external control of reinforcement.

For the third independent variable self concept of educational achievement, the results are interpreted to mean that the four general educational achievement aspects relating to all students of the same age in Western Australia, realistic level of general achievement at the end of schooling or university, idealistic level of general achievement at the end of schooling or university, realistic level of general achievement at 30 years of age and idealistic level of general achievement at 30 years of age, are all manifestations of the one underlying trait self concept of educational achievement.

Separate Relationships between the Context, Independent and Dependent Variables

The conclusions relating to the dependent variable level of occupational aspiration are:

i. Level of occupational aspiration has a strong positive relationship with level of educational aspiration for both boys and girls. This relationship increases with increasing years at secondary school for boys but remains constant for girls.

ii. General achievement at school has a strong positive influence on level of occupational aspiration for both boys and girls. This influence increases with increasing years at secondary school for both boys and girls.

iii. Social status of the family has a moderate positive influence on level of occupational aspiration. This influence increases with increasing years at secondary school for boys, but remains constant for girls. In all secondary school Years 8 to 11, for both boys and girls, at least part of this influence occurs because high general school achievers are more likely to be reared in high social status families than in low social status families.

iv. Attitude of determination to achieve academically has a quite strong positive relationship with level of occupational aspiration. This relationship decreases with increasing years at secondary school for girls, but remains constant for boys. In all secondary school Years 8 to 11 for both boys and girls, at least part of this relationship occurs because high general school achievers are more likely to hold high rather than low, attitudes of determination to achieve academically.

v. Locus of control is <u>not</u> related to level of occupational aspiration at Year 8&9 level for either girls or boys. However, as the girls and boys continue through secondary school a weak positive relationship develops between locus of control (internal high, external low) and level of occupational aspiration.

vi. Attitude of self concept of educational achievement has a strong positive relationship with level of occupational aspiration. This relationship is stronger for boys than girls and increases with increasing years at secondary school. In all secondary school Years 8 to 11, more so for girls than for boys, part of this relationship occurs because high general school achievers are more likely to hold high than low attitudes of self concept of educational achievement.

The conclusions relating to the second dependent variable level of educational aspiration are:

vii. General school achievement has a strong positive influence on level of educational aspiration. This influence remains constant with increasing years at secondary school for both girls and boys.

viii. Social status of the family has a moderate positive influence on level of educational aspiration for both girls and boys. This influence remains constant with increasing years at secondary school. In all secondary school Years 8 to 11, for both girls and boys, at least part of this influence occurs because high general school achievers are more likely to be reared in high social status families than in low social status families.

ix. Attitude of determination to achieve academically has a moderate positive relationship with level of educational aspiration. This relationship decreases markedly with increasing years at secondary school for girls, but remains constant for boys. In all secondary school Years 8 to 11, for both boys and girls, at least part of this influence (and for Year 10&11 girls, perhaps all the influence) occurs because high general school achievers are more likely to hold high rather than low attitudes of determination to achieve academically and vice versa.

x. Locus of control is <u>not</u> related to level of educational aspiration for girls and boys in Years 8&9. As the boys continue in secondary school a weak positive relationship develops between locus of control (internal high, external low) and level of educational aspiration. This is in contrast to the girls for whom there is still no relationship between locus of control and level of educational aspiration in Years 10&11.

xi. Attitude of self concept of educational achievement has a strong positive relationship with level of educational aspiration for Year 8&9 girls and boys. This relationship increases with increasing years at secondary school for boys but remains constant for girls. In all secondary school Years 8 to 11, more so for girls than boys, part of this relationship occurs because high general school achievers are more likely to hold high rather than low attitudes of self concept of educational achievement.

The conclusions relating to the context and independent variables are:

xii. Attitude of determination to achieve academically has a positive relationship with general school achievement for girls and boys in Years 8&9. This influence remains constant with increasing years at secondary school for boys, but decreases for girls.

xiii. (a) Social status of the family has a low positive influence on the attitude of determination to achieve academically for Year 8,9,10&11 boys. This influence remains constant with increasing years at secondary school.

(b) Social status of the family does not influence attitudes of determination to achieve academically for Year 8&9 girls. However, social status of the family has a low negative influence on attitudes of determination to achieve academically for Year 10&11 girls.

xiv. Locus of control is not related to general school achievement for Year 8,9,10&11 girls and boys.

xv. Social status of the family does not influence locus of control for Year 8,9,10&11 girls and boys.

xvi. General school achievement has a strong positive relationship with self concept of educational achievement for Year 8,9,10&11 girls and boys. This relationship remains constant with increasing years at secondary school for both girls and boys.

xvii. Social status of the family has a low positive influence on attitudes of self concept of educational achievement for Year 8&9 girls and boys. This influence increases substantially with increasing years at secondary school for boys, but remains constant for girls.

Joint Relationships between the Context, Independent and Dependent Variables

For the analysis of the joint relationships between the variables, level of occupational aspiration and level of educational aspiration are combined and their scores totalled, to produce one dependent variable, aspirations. The reasons are firstly that zero order correlations between level of occupational aspiration and level of educational aspiration are high and positive in all four data groups; and secondly that the proportion of variance accounted for in level of occupational aspirations is similar to that accounted for in level of educational aspirations with the same predictor variables in similar proportions for all four data groups. This variable aspirations is used as the dependent variable in the regression analyses and as a result the following conclusions are drawn.

xviii. Together, the context variables achievement and social status have a strong influence on aspirations for Years 8&9 girls and boys, accounting for about 37 percent of the variance. Of the two, achievement has the much stronger influence and its effect, unlike that of social status which remains constant, increases with increasing years at secondary school for both girls and boys. These two variables account for about 52 percent of the variance in aspirations for Year 10&11 girls, and about 56 percent of the variance for Year 10&11 boys.

xix. Together, the independent variables determination to achieve academically and self concept of educational achievement, have a strong relationship with aspirations for both Year 8&9 girls and boys, accounting for about 33 percent of the variance in aspirations for girls and about 42 percent for boys. For girls, determination to achieve academically has a stronger relationship with aspirations than self concept of educational achievement, while for boys, self concept of educational achievement has a stronger relationship with aspirations than determination to achieve academically. With increasing years at secondary school, the relationship between the two variables and aspirations increases for boys but not for girls. For boys, the relationship between self concept of educational achievement and aspirations increases with increasing years at secondary school, while the relationship between determination to achieve academically and aspirations decreases. For girls, the relationship between self concept of educational achievement and aspirations increases with increasing years at secondary school, while the relationship between

determination to achieve academically and aspirations decreases. For Year 10&11 girls, the independent variables together account for about 36 percent of the variance in aspirations but for Year 10&11 boys, about 52 percent.

xx. Together, the context variables achievement and social status, exert a small influence on determination to achieve academically for Year 8&9 girls and boys. Of the two context variables, achievement has the much stronger influence and social status exerts practically no influence. With increasing years at secondary school, the influence of the two variables on determination to achieve academically, decreases for both girls and boys. Achievement still exerts the greater influence, although there is a tendency for low social status Year 10&11 girls to have a high determination to achieve academically.

xxi. Together, the context variables achievement and social status exert practically no influence on locus of control for Year 8,9,10&11 girls and boys.

xxii. Together, the context variables achievement and social status exert a moderate influence on self concept of educational achievement for Year 8,9,10&11 girls and boys. Of the two context variables achievement has the much stronger influence in all four data groups, and social status exerts practically no influence at all.

xxiii. Together the two context variables achievement and social status, and the independent variables determination to achieve academically and self concept of educational achievement, have a strong relationship with aspirations for Year 8&9 girls, accounting for about 46 percent of the variance in aspirations. In order of decreasing relationship the most important are determination to achieve academically, achievement, social status and self concept of educational achievement. As the girls continue in secondary school, the total relationship of all the variables with aspirations increases. Achievement has the strongest relationship followed by self concept of educational achievement and social status. They account for about 59 percent of the variance in aspirations at Year 10&11.

xxiv. Together the two context variables achievement and social status, and the independent variable self concept of educational achievement, have a strong relationship with aspirations for Year 8&9 boys, accounting for about 51 percent of the variance in aspirations. In order of decreasing influence, the most important are self concept of educational achievement, achievement and social status. As the boys continue in secondary school, the total relationship of all the variables with aspirations increases. Achievement is the most important followed by self concept of educational achievement and locus of control exerts a very minor influence. These variables account for about 68 percent of the variance in aspirations at Year 10&11.

IV DISCUSSION

These results are consistent with the Western Australia study of vocational aspirations by Sheridan (1976). That study also found that the mechanism of aspiration formation is different for girls and boys. For Year 11&12 students two definite bands of influence are important in this mechanism. Commencing with social class as one band and with mental ability as the other, each band of influence spreads through teacher and parental expectations (as perceived by the students) and on to vocational aspirations.

However, both social class and mental ability have a smaller influence on vocational aspirations than do teacher expectations and parental expectations, whose influence is very strong; and these influences are less pronounced for girls than boys. An additional sex difference is that while the influence of social class on teacher expectations is stronger for boys than girls, the influence of social class on parental expectations is stronger for girls than boys. These variables together with home environment "explain" about 65 percent of the variance in vocational aspirations for boys and about 50 percent for girls.

Together with these results, the results of this study suggest that a reasonably comprehensive outline of the network of influences on the vocational aspirations of adolescents can now be developed. This network is now presented.

It seems probable that as the boys and girls proceed through Year 8 at secondary school, their general academic achievements become known to teachers, peers, parents and themselves. On the basis of these achievements, teachers may provide praise, rewards and sanctions through their awards of grades for these achievements. Parents, through both their own aspirations for their children and their rewards, praise and sanctions of general academic achievement also may influence their childrens views of their own general academic achievement. Consequently, high general academically achieving students strongly tend to aquire high academic self concepts. Differential forces, by sex however, have already, and are still playing a part in forming aspirations and academic self concepts.

Boys who develop high academic self concepts are strongly likely to develop high status levels of vocational aspirations. Those boys with high general school achievements are also strongly likely to develop high status levels of vocational aspiration. This may be expected by parents and teachers and the community in general and could be subtly conveyed to boys through attitudes, especially by parents and through books, newspapers and television; and it is openly preached by many.

In other words, boys with either high academic self concepts or high general academic achievement, develop high aspirations of educational achievement for later life and the near future, with its corresponding high occupational status levels. These occupational status levels consist of a range bounded at the upper level by a realistic long term choice and on the lower level by a realistic short term choice. Year 8&9 boys, because of their lack of knowledge and experience, tend to realistically expect on leaving school or university, the same occupational status as they idealistically wish for.

The process of aspiration formation for young girls is dissimilar from that of the boys. It is possible that some parents and teachers convey the expectation to girls that many of them will marry and that most married women will spend a substantial part of their working life involved with "home duties", to the detriment of a career. Consequently, although like boys, girls with high general academic achievements develop high academic self concepts, unlike boys, girls may need to hold strong attitudes of determination to achieve academically and/or be reared in high social status families, in order to maintain high status levels of vocational aspirations against a general expectation that they should not hold such aspirations. Those girls with high general academic achievement are strongly likely, but not so strongly as boys, to develop high levels of vocational aspiration. In other words, unlike boys, girls with either high academic self concepts or high general academic achievement also may need to hold high attitudes of determination to achieve academically and/or be reared in high social status families, in order to develop and maintain high status levels of vocational aspirations at Year 8&9 level. These occupational status levels consist of a range bounded at the upper level by an idealistic short term choice and at the lower level by a realistic short term choice. Probably because of marriage prospects with its subsequent liklihood of "home duties"

and career interruption, the idealistic long term occupational status choice for girls, is depressed in comparison to boys. Nevertheless, their realistic short term choices are similar to that for boys with similar levels of vocational aspiration.

As the boys and girls continue through secondary school, their general academic achievements should become even better known to teachers, peers, parents and themselves. On the basis of these achievements over a number of years, teachers probably continue to provide praise, rewards and sanctions through their awards of grades. Because these grades can be compared on a state wide basis, the boys and girls probably continue to develop an excellent idea of their own academic achievements. Parents too, may continue to influence, through their own expressions of praise, rewards and sanctions, their children's own views of their academic achievement. Consequently, high general academically achieving students tend to acquire with academic self concepts. With increasing years at secondary school students' status levels of vocational aspirations are influenced increasingly by general academic achievements and academic self concepts. That is, as the boys and girls continue through secondary school, those with either high academic self concepts or a high general academic achievement, are much more likely than younger boys and girls to develop high aspirations of educational achievement for later life with its corresponding high occupational status levels.

It seems possible that if some parents and teachers convey to girls that marriage will interrupt their career development, then some girls may not continue to develop their academic self concept as much as boys. That is, it may be seen by many parents, and some sections of the community and by the girls themselves generally, that while high achievement is valuable, it is not as necessary for girls as for boys. Therefore, while older secondary school girls do develop high attitudes of academic self concept based on achievement, academic self concept does not influence the formation of vocational aspirations as much for girls as boys.

Another difference between the formation of vocational aspirations for girls and boys lies in the influence of social status. If lower social status parents believe that a good education is less necessary for girls than boys, then girls reared in high social status families are more likely than those reared in low social status families to develop high vocational aspirations. This is a possible explanation for the larger influence of social class on parental expectations for girls in comparison to boys.

For the older girls and boys, the occupational status levels consist of a range bounded at the upper level by the realistic long term choice (which is not empirically distinguishable from the idealistic short term choice) for girls and the idealistic long term choice for boys, and at the lower level by the realistic short term choice for both girls and boys. Possibly because of marriage prospects, as previously explained, the status of the idealistic long term choice is depressed for girls in comparison to that of boys. Furthermore, the occupational status realistically expected in the long term is similar to that idealistically wished for in the short term, for both girls and boys.

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ANALYSIS OF DATA FROM ATTITUDE INSTRUMENTS

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Peterson and Carlson (1979) summarised their views of research on attitudes to science in this way:

> It appears that attitude research has attracted both creative pioneers, who work from a theoretical base, as well as those who want to try designing their own test. For this latter group most of the innovation seems to end with the design of instruments for the assessment of student attitudes to science. Most of these instruments have been developed in isolation from one another. (p.498)

Meyer's (1974) collection of unpublished evaluation instruments in science education supports this view. It lists 16 different instruments to measure general attitudes to science, and 12 instruments to measure attitudes to a particular science discipline. Most of these instruments were developed as part of doctoral research programmes.

The large number of instruments that have been developed is a striking feature of the literature on attitudes to science. Studies cited in the reviews by Gardner (1975) and Ormerod and Duckworth (1975) include many examples of attitude instruments. Though it is true that a particular instrument may need to be developed in a study of some specific affective outcome, those outcomes investigated in many studies are quite general. There seems to be little reason to develop a new attitude instrument when there is a pool of existing instruments available. There could be more profit in systematic study of the psychometric properties of the existing tests.

For tests with separate sub-scales, it is important to examine the distinctiveness of these scales. This is typically done by examination of the intercorrelations among the responses of subjects to the various scales to determine whether they measure distinct attitudes. Even where the subscales are revealed empirically to collapse to a smaller number of dimensions, there can be conceptual grounds for maintaining distinctions among them. An analogous situation with a cognitive test would be the maintenance of algebra and arithmetic sub-scales even when they come from highly correlated sub-scales of a mathematics test. The conceptual distinctiveness of sub-scales can be examined using judgements about the classification of items rather than responses to the items.

Purpose

The purpose of this investigation was to examine the distinctiveness of the sub-scale structure of an attitude instrument, the Test of Science-Related Attitudes (TOSRA) developed by Fraser (1978).

Student responses to the items were analysed to determine the dimensionality of the space in which the student attitudes can be represented. Teacher categorization of the items were analysed to determine the dimensionality of the space in which the conception of student attitudes can be represented.

Method

The instrument

TOSRA is a seventy-item Likert instrument. There are seven scales, with ten items per scale. The scales are based on Klopfer's (1971) categories for the affective domain in science education, with five of them measuring what could be described as 'attitudes to science', and the other two scales measuring "scientific attitudes". The distinction between these two kinds of attitudes, which has been examined elsewhere (Schibeci, 1977), can be stated briefly.

Attitudes to science are those which involve an attitude object (for example, "science" or "scientists"), while scientific attitudes refer to those attitudes (such as curiosity, honesty and open-mindedness) which scientists are presumed to display in their scientific work.

The data

Students responses to TOSRA were obtained through administration to a sample of 1041 students in the first three years of high school (grades 8-10) in Perth, Western Australia. The students were drawn from 11 different schools chosen to cover the geographic and socio-economic range within the city. There were seven co-educational government high schools, two independent Catholic schools, one boys' and one girls', and two independent non-Catholic schools, one boys' and one girls'. The numbers of students responding at grades 8, 9 and 10, with the percent male in parentheses, were 342 (53.8), 343 (46.4) and 356 (52.8) respectively.

The test was administered during September, 1979, by which time the grade 8 students had studied high school science for approximately six months.

Classifications of the items were obtained from judges drawn from two groups: a group of students in the final year of a four-year science teacher education programme, and a group of students in a Master's degree programme in science education. There were 39 judges in all.

These judges were presented with the full 70 items from TOSRA, printed on separate cards, and were asked to sort them into groups of items which appeared similar. No indication was given about either the number of groups which might be created or the criteria which might be used in establishing them.

Results and Discussion

Student response data

Summary statistics for the seven sub-scales and the whole test are shown in Table 1. The reliability for the whole test (0.95) was higher than that for any sub-test. The whole test was, of course, seven times longer than the sub-tests but its reliability was so high that it does appear to be undimensional.

Table 1

Summary statistics and reliability for each TOSRA Scale

	M grade			SD grade			Reliability (Cronbach's α)
	8	9	10	8	9	10	
Social Implications of Science	36.6	35.7	36.7	5.6	5.9	5.7	0.81
Normality of Scientists	35.5	35.7	35.6	4.8	4.8	4.5	0.73
Attitude to Inquiry	38.3	39.3	37.5	4.5	5.2	5.0	0.69
Adoption of Scientific Attitudes	35.6	35.7	36.7	4.5	5.4	4.6	0.68
Enjoyment of Science Lessons	33.9	31.4	31.9	7.9	8.7	7.8	0.91
Leisure Interest in Science	28.8	27.2	27.7	7.6	8.1	8.0	0.87
Career Interest in Science	29.1	28.4	29.2	7.2	8.3	7.9	0.88

Note. Each scale contains 10 items scored 1 to 5, so that the minimum and maximum score possible on each scale is 10 and 50 respectively.

The results for the Perth sample are very similar to those reported for a Sydney sample by Fraser (1978). He noted that the mean scores varied considerably from scale to scale, but such between-scale comparisons need to be made cautiously. There is some evidence (Simpson, Rentz and Shrun, 1976) that differences in sub-scale scores on attitude instruments using Likert techniques may be explained in part by the phrasing of individual items. They found, for example, that students tended to agree with more mildly worded positive items than with strongly stated positive items.

The intercorrelation matrix for the seven TOSRA scales is given in Table 2. Despite the higher reliability of the total scale, the inter-scale correlations are only moderate except for those among scales 5, 6 and 7.

Table 2

Correlation coefficients for each pair of TOSRA scales

	1	2	3	4	5	6	7
1. Social implication of science.							
2. Normality of scientists.	0.40						
3. Attitude toward scientific inquiry.	0.23	0.24					
4. Adoption of scientific attitudes.	0.53	0.39	0.40				
5. Enjoyment of science lessons.	0.55	0.32	0.25	0.48			
6. Leisure interest in science.	0.52	0.36	0.22	0.48	0.72		
7. Career interest in science.	0.53	0.30	0.22	0.47	0.71	0.77	

Note. All correlation coefficients are significantly different from zero ($p < 0.001$).

Fraser (1978) also found that the three scales (Enjoyment of science lessons, Leisure interest in science and Career interest in science) gave high scale intercorrelations. He argued that although these scales are conceptually distinct, there would be a tendency for students who enjoyed science to have both a career and leisure interest in science. In addition, he argued that because all values of scale intercorrelations were smaller than the square root of the product of the corresponding scale reliabilities, this justified retention of the seven TOSRA scales as separate dimensions.

As a direct check on the dimensionality of the total test, the inter-item correlation matrix was factor analysed. The pattern of factor loadings underlying the sub-scale structure was tested directly with orthogonal seven factor confirmatory factor analysis. Each item was permitted to load only on the factor corresponding to the scale of which it was a member. All other loadings were fixed at zero. This

confirmatory analysis was performed using LISREL IV (Joreskog and Sorbörm, 1978). Starting values for the non-zero factor loadings were obtained from an exploratory principal axis factor analysis with varimax rotation using the SPSS programme (Nie, Hull, Jenkins, Steinbrenner & Bent, 1975).

This seven factor model fitted the data very poorly, χ^2 (2346) = 19750, $p < .0001$. The first order partial derivations indicated that a better fit could be obtained if the parameters corresponding to inter-correlations among the factor were freed to allow an oblique solution to be obtained. That is, the dimensionality of the space is clearly less than seven.

Teacher categorizations

The teacher's categorizations of the items were analysed by latent partition analysis (Wiley, 1967; Hartke, 1979). For each respondent, a manifest partition was obtained as a category x items matrix with ones and zeros indicating item inclusion in a category or exclusion. The number of rows (categories) can vary from judge to judge. For the judges in this study, the number of categories used varied from three to fourteen with a median of six. A joint occurrence matrix was then obtained for each judge by premultiplying the manifest partition matrix by its transpose. Each judge thus had a 70 x 70 joint occurrence matrix of ones and zeros with each one indicating that the items heading the row and column corresponding to the cell were classified in the same category by that judge.

A mean joint proportion matrix was then formed and factor analysed. An orthogonal seven factor confirmatory analysis was used with this matrix also, with the pattern again reflecting the sub-scale structure of TOSRA. This seven factor model fitted the data well, χ^2 (2346) = 721, $P > .10$, indicating that the judges categorized the items in the same manner as the test developer without any exposure to the developer's categorization.

The separate analyses of student responses and teacher judgements make clear that, although the developer's factor structure is not evident in the response pattern of students, it is in the conceptual framework of teachers. The case for maintaining the separate scales can thus be more strongly based than it could through appeal to the observation that inter-scale correlations were less than the square root of the product of the corresponding scale reliabilities.

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FACTORS AFFECTING THE OCCUPATION ENTERED INTO ON LEAVING SCHOOL

1 : THE ROLE OF THE FAMILY

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The subject of vocational choice has been a focus of interest to psychologists, sociologists and vocational counsellors for some time now. The theories prior to the 1950's postulated that vocational choice was essentially a nondevelopmental one Paterson (1949) or "trait and factor" theory Pepinski & Pepinski (1954). These emphasized instantaneous nondynamic elements in vocational decision making. This implies that the individual, at the time of entry into work, appraised personal abilities and surveyed job opportunities open to him and chose an employment which offered the best chance of success and satisfaction.

In contrast, from the 1950's onwards, there has been a rethinking on this and it has been postulated that vocational choice is dependent upon a long-term developmental process rather than this being an instantaneous decision. It was proposed that the individual makes a series of related decisions which lead on to the final selection of an occupation and entry into it (Dysinger, 1950; Ginsberg et al. 1951). According to most theories on vocational development, the choice process spans the years 10-21, and that there are periods of changing decision-making over this age span from one of realizing vocational choice to crystallisation of the choice, and maturity of attitude towards the vocational choice. However, these concepts on vocational development have not been defined in a way so as to be of value in predicting and guiding vocational behaviour.

There has been extensive research into the subject in the U.S.A., but as the educational system there is different from that in Australia, this study was initiated to evaluate the role of some of the factors which determine the choice of an occupation in the local setting.

METHODOLOGY

Students entering first year High School in the State school system in Tasmania in 1971 were used for this study. Parental consent was obtained. A 1: 5 randomly selected sample constituted the original test population.

A questionnaire was designed to obtain information on various factors that may influence vocational choice. The guidance officers attached to the schools assisted the students in the completion of these forms on an annual basis, until the group had completed the High School Certificate level. The replies on each form, and the information on occupations entered on leaving school, were coded for computerisation. Statistical analysis of the data was carried out using the statistical package for the Social Sciences programme.

Occupations entered into on leaving school were obtained direct from the school leavers or parents through letters, telephone calls, home visits or the 1978 State Electoral Roll for those who could not be traced by the other procedures.

Tables were obtained giving frequencies and column percentages. Four statistical tests were selected for analysis of the data - the chi-square, the contingency coefficient, symmetric lambda, and the symmetric uncertainty coefficient Nie et al. (1975)

This paper will examine what role the family plays in one's choice of a career on leaving school. The occupational classification used in this study was as represented in Table I.

TABLE 1

C0. unemployed, retired.

C1. unskilled - gardener, cleaner, cook, barber, miner, farm worker, labourer, hospital attendent.

C2. semi-skilled - shop assistant, factory worker, construction equipment operator, driver, jockey.

C3. skilled - clerical, toolmaker, plumber, electrician, carpenter, mechanic, policeman, soldier, air hostess, hairdresser, butcher, singer, model, ambulance driver, auxillary nurse, clerical worker, typist, bookkeeper, salesman, postmaster.

C4. managerial - self employed, inspector, shop owner, farmer, supervisor.

C5. sub-professional - teacher, nurse, draftsman, artist, pilot, librarian, actor, surveyor.

C6. professional - architect, engineer, scientist, doctor, pharmacist, accountant, clergyman, psychologist, social worker, journalist, physiotherapist, lawyer, member of Parliament, grazier.

C7, homeduties.

In the analysis of the data it became apparent that the relationship, when significant, was at the two ends of the job scale C1-2 and C5-6. As the number in job category C4 was very small this was combined to give a compositegroup C4-5-6. Occupation entered into on leaving school would be referred to as OCC-LEA.

RESULTS

No significant relationship was observed in either sex between parental age, number of siblings and birth order when this was compared with OCC-LEA.

Educational level of parents and siblings (Table II)

In both sexes it was found that there was a direct relationship between OCC-LEA and the level of education achieved by both the parents and the siblings. This relationship was greater with parents, 35% of males entering occupation categories C1-2 had fathers who had attained only primary level schooling. This fell to 8% as the fathers' educational status rose to tertiary level. Of those entering occupational categories C4-5-6 only 12.9% had fathers with primary education but this proportion increased to 48% in the group with fathers who had tertiary education. The distributional pattern of OCC-LEA was the same for both sexes in relation to the educational status of the mother and that of the siblings, though less marked than that in the siblings.

TABLE II - Education of Parents & Siblings

	Males				Females			
	Primary	Secondary	Technical	Tertiary	Primary	Secondary	Technical	Tertiary
FATHERS								
C1-2	35.0%	23.6%	18.4%	8.0%	31.9%	25.2%	8.7%	17.6%
C4-5-6	12.9%	14.8%	23.0%	48.0%	16.6%	15.4%	21.1%	64.5%
MOTHERS								
C1-2	31.9%	24.1%	17.6%	7.1%	29.2%	23.2%	13.6%	13.3%
C4-5-6	9.7%	18.0%	17.5%	50.0%	17.9%	16.6%	27.0%	46.5%
SIBLINGS								
C1-2	32.0%	11.8%	16.7%	12.5%	30.7%	11.7%	-	15.6%
C4-5-6	8.8%	14.7%	16.7%	33.0%	12.1%	25.6%	-	34.4%

Parental Occupation

FATHER The influence of the fathers' occupation on OCC-LEA was evaluated and it was found that where the fathers' occupation was in category C1-2, 52.7% of the sons entered jobs at the same level, and only 13.6% entered the higher levels C4-5-6. Of fathers with occupational categories C4-5-6 only 18.7% of the sons entered jobs C1-2, but 62.1% entered job levels similar to those of their fathers (Table III). The influence of the fathers' occupational status C4-5-6 was similar on their daughters to that on their sons, but this was less pronounced at the lower level of occupation.

TABLE III - Parents' Occupation

		OCC-LEA - MALES		OCC-LEA - FEMALES	
		C1-2	C4-5-6	C1-2	C4-5-6
Fathers' Occupation	C1-2	53%	14%	39%	24%
	C4-5-6	18%	62%	16%	46%
Mothers' Occupation	C1-2	43%	14%	61%	6%
	C4-5-6	36%	27%	24%	29%

MOTHER As only 20% of the mothers were at work during the period of the study, their former occupation was analysed against OCC-LEA. Where mothers had worked in occupational categories C1-2, 43% of the sons and 61% of the daughters entered jobs at the same level, and 14% of the sons and 6% of the daughters respectively entered jobs at the higher level C4-5-6 (Table III). Mothers' occupation at the higher level C4-5-6 did not produce a significant variation at the two levels of occupation for both sons and daughters.

SIBLING Looking at the effects of the two levels of occupation in siblings, on OCC-LEA, sibling occupation at level C1-2 had a corresponding influence on both sexes similar to that seen in parents. In males this relationship at the C1-2 occupational level was present with all three siblings but in females only with the first sibling (Table IV). When it came to occupational level C4-5-6 only the first sibling influenced the males - 52.9% entered occupations at the same level, but in females this

occurred with the second sibling though not to the same degree - 33.3%.

TABLE IV - Sibling Occupation

		OCC-LEA - MALES		OCC-LEA - FEMALES	
		C1-2	C4-5-6	C1-2	C4-5-6
Sibling Occupation C1-2	Sib. 1	36.8%	17.6%	36.4%	13.5%
	Sib. 2	35.5%	9.0%	28.1%	28.6%
	Sib. 3	40.0%	11.0%	46.7%	22.2%
Sibling Occupation C4-5-6	Sib. 1	2.6%	52.9%	13.6%	18.9%
	Sib. 2	16.1%	18.1%	6.2%	33.3%
	Sib. 3	10.0%	22.0%	6.7%	11.1%

Parents' choice of occupation for their child

Both parents, when expressing a choice of occupation for their child do not wish their child to enter job categories C1-2 (less than 2%), whereas 25.2% of males and 24.2% of females did in fact finally enter this level of work. On the other hand there is a very high expectation towards job categories C4-5-6. Nearly 50% of both mothers and fathers hope the daughters will enter into the sub-professional levels of work C5. Only 15% of them actually entered this category of work (Fig. 1 and 2). For the sons, this high expectation is for job category C6; 32% of fathers and 34% of mothers indicate this preference in the first year of High School, and it declines to to 17% and 18% respectively by the end of High School.

Fig. 1 - Occupational preference and OCC-LEA

- Fathers

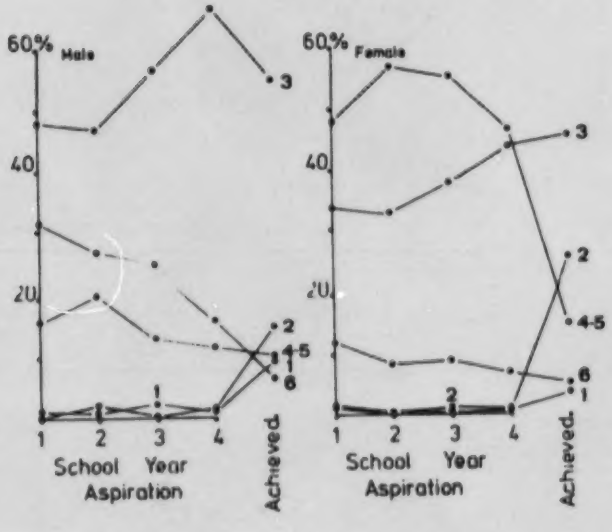
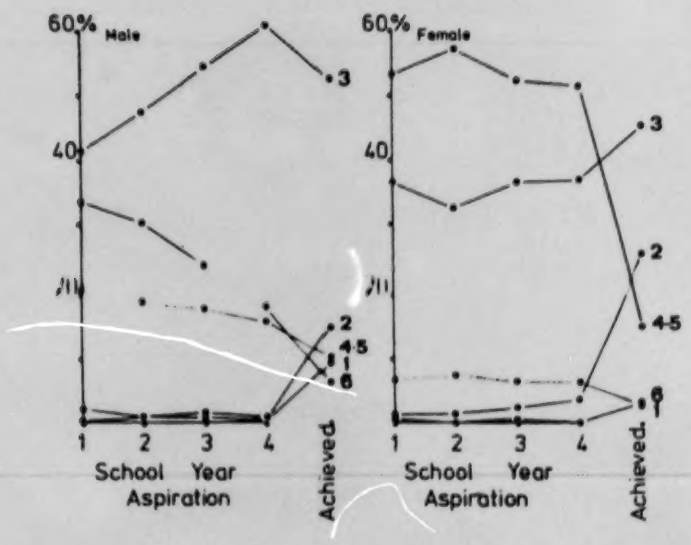


Fig. 2 - Occupational preference and OCC-LEA

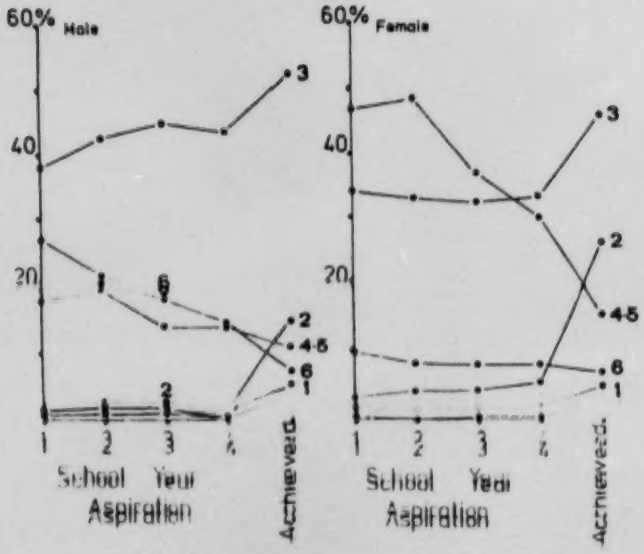
- Mothers



Students' occupational preference (Fig. 3) both for males and females starts off in an identical way to that of their parents and for males this patter continues to be similar throughout the period of High School. For the females the initial high aspiration for C5 jobs dropped from 47% to 30% by the end of the fourth year.

Fig. 3 - Occupational preference and OCC-LEA

- Students



DISCUSSION

When expressing vocational preference for their children both parents do so in a way identical to one another. There is a uniform lack of preference for work at the bottom of the occupational scale C1-2, and a heavy leaning to that at the top end C5-6. Children of both sexes when recording their own preference follow the same trend as their parents. This observed difference between the males and females may be related to the role of masculinity/feminity in vocational preference. The close similarity in the occupational preferences as expressed by both the parents and the children may indicate that the latter are being influenced by parental wishes and expectations.

In analysing the role of the family two factors stand out in their relationship to OCC-LEA -

a) the level of education attained by the parents and the siblings

b) the occupational status of the parents and the siblings

Both these factors are in fact inter-related as parents with tertiary level of education are more likely to be in the upper levels of the occupational scale and vice versa.

However, as both parents and their children have similar high vocational aspirations in the first two years of High School, one has to explain why the subsequent variation in the groupings of OCC-LEA takes place in relation to parental occupation. This vocational "inheritance" has been explained by Ginzberg et al. (1951) on the basis that boys from under-privileged homes, in comparison to those from privileged homes, take little initiative in trying to influence their early vocational choice. This passive pattern of earlier selection occurs because fathers in unskilled work are unable to give inner knowledge and thereby enthuse their sons into the upper echelon of work, whereas fathers in professional and sub-professional levels of work, help their sons in an active way to aim for, and achieve the higher levels of work.

Examination of the data has revealed that the greatest proportion attained the skilled level of occupation C3. However, when looking at the two extremes of the scale more than half the males who entered C1-2 level of occupation had fathers working at a similar level and the converse trend was observed in reference to the attainment of professional jobs, revealing the close relationship of OCC-LEA to parental occupation. The conclusion is that though aspirations do not seem to be a good prediction for ultimate attainment of occupation, when taken with parental educational and occupational level, the ability to predict the level of occupation finally attained improves.

SUMMARY

A prospective study was commenced in 1971 on randomly selected students entering first year State High School in Tasmania, and continued annually for the full period of school in order to ascertain the factors which go to influence the occupational preference of children during the important stage of secondary education, and how this relates to the occupation finally entered into on leaving school. Of the various factors examined to evaluate the role of the family it was found that two factors, the level of education attained by the parents and the siblings and the occupational status of the parents and the siblings, had a significant relationship to OCC-LEA.

ACKNOWLEDGEMENTS

I wish to express my thanks to Professor I.C. Lewis and Mr. J. Morgan, Supervisor of School Guidance, who were the original planners of this project, the School Guidance Officers who assisted in the collection of the data, Mr. Kent Rayner who assisted in the computer analysis and Mrs. Vera Homes who patiently prepared the manuscript.

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Major National Reports in Australian Education

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1. INTRODUCTION

Committees of inquiry are, on the face of it, important aids to policy-making in Australian Government. Tannock, for example, lists national reports as the first of his five major souces of influence on Commonwealth education policy.[1] Yet despite the apparently major contribution of national reports to shaping post-war education policy and planning in all sectors from university to pre-school, researchers have devoted relatively little attention to them and even less to any comparative study of them.[2] This paper is a very brief and preliminary contribution to remedying the latter deficiency. The following six major reports have been selected for comparison and discussion:[3]

Walker Report	(1943)
Murray Report	(1957)
Martin Report	(1964)
Karmel Report	(1973)
Kangan Report	(1974)
Williams Report	(1979)

Naturally, any such selection has an element of arbitrariness about it. These six were selected primarily because they broke new ground, because of their generally acknowledged significance, and because they cover a range of educational sectors and sub-sectors.

It is proposed to explore certain common elements of the reports and to make some generalisations relating to such issues as: the nature of the committees and their origins; their membership and terms of reference; their major recommendations for new Federal education structures and the government's response; and the impact and influence of the reports.

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[1] P.D.Tannock, The Government of Education in Australia: The Origins of Federal Policy. UWA Press, Perth, 1975.

[2] For a comprehensive listing of major Commonwealth education reports 1955-1980 see the bibliography in Grant Harman and Don Smart (eds.), Federal Intervention in Australian Education. Aust. International Press. (forthcoming).

[3] The full titles of the reports are as follows:

The Inter-Departmental Committee on Education. Unpublished, 1944. (Walker Report).

Report of the Committee on Australian Universities. Canberra: Government Printer, 1957. (Murray Report).

Tertiary Education in Australia: Report of the Committee on the Future of Tertiary Education in Australia to the Australian Universities Commission. Canberra: Government Printer, 1964-65 (3 volumes). (Martin Report).

Schools in Australia: Report of the Interim Committee for the Australian Schools Commission. Canberra: A.G.P.S. 1973. (Karmel Report).

TAFE in Australia: Report on Needs in Technical and Further Education. Canberra: Government Printer, 1974. (Kangan Report).

Education, Training and Employment. Report of the Committee of Inquiry into Education and Training. Canberra: A.G.P.S. 1979 (3 volumes). (Williams Report).

2. THE NATURE OF THE SIX COMMITTEES.

On closer examination of the six committees, it is clear that whilst they all have much in common, there are some differences between them. All, however, fit Greg Fry's definition of an NSB (non-statutory body)[1]:'... a governmental agency which is not created by an Act of Parliament or an executive regulation (and which is not a department)'. This is important, for there is a very common tendency for students and academics to use the terms *committee* and *commission* interchangeably when, in fact, commission should be reserved for statutory bodies with some degree of assured permanency. Committees, on the other hand, can be created and dissolved at ministerial whim, without repeal or enactment of an Act of Parliament. It should be noted, however, that permanency is no guarantee that a commission's recommendations will necessarily have more ultimate influence than those of a dissolving ad hoc committee. Another important distinction is that whilst commissions usually have an obligation to report publicly, committees report to ministers who are free to make public or withhold such reports.

In his six-category classification of NSBs, T.B. Smith lists as his first and second categories, respectively, committees of inquiry and advisory committees.[2] It is into these first two categories which all of our six committees seem to fit. A committee of inquiry is an *ad hoc* committee established by a Minister to address a particular problem and once having reported, the committee dissolves. An advisory committee, on the other hand is a standing NSB which has a continuing advisory brief in a particular area. If we try to classify our six committees on this basis, it is clear that only one, the Kangan Committee on TAFE was an on-going advisory committee. It was established along the same lines as the Commonwealth Advisory Committee on Advanced Education (CACAE) and like the CACAE, was ultimately replaced by a permanent statutory commission - the TAFE Commission (TAFEC, 1975) and Commission on Advanced Education (CAE,1971) respectively.

Although the other five committees were all *ad hoc* committees which were expected to report and disband, they did vary somewhat in nature. The Walker Committee was the only committee composed entirely of public servants, being, in fact, an inter-departmental committee. Whilst the Murray and Williams Committees seem to have been 'standard' committees of inquiry, both the Martin and Karmel committees had their own peculiarities. The Martin Committee was actually a committee of the Australian Universities Commission (AUC) whilst the Karmel Committee was the interim committee for the Schools Commission (SC). Casual observation suggests that these 'technical' variations in the nature of the six committees had no significant effect in terms of enhancing or retarding their ultimate influence on policy.

3. THE ORIGINS OF AND CONTEXT SURROUNDING COMMITTEES

Professor Bruce Williams argues that '... Inquiries are a normal feature of democratic communities... It is in no way surprising ... that the structures and processes of education should be subjected to periodic inquiries and appraisals.'[3] However, the timing and emergence of these committees of inquiry and the actual triggering mechanisms are more difficult to explain. Kogan and Packwood's rather sweeping assertion that in the UK *ad hoc* education inquiries are appointed 'in response to public pressure' was a central element in the emergence of the Karmel (and to a lesser extent) Kangan and Williams committees but it was either absent or fairly peripheral in the Walker, Murray and Martin committees.

these reports in the wider context of

It is certainly crucial to view the emergence and subsequent recommendations of all/economic, demographic, social, educational and political forces prevailing at the time. Perhaps this can best be illustrated by the kind of dramatic contrast which Bruce Williams drew between the conditions and attitudes prevailing at the time of the emergence of the Martin and Williams committees on post-secondary education. Economically and demographically Martin's emergence could not have been more propitiously timed:

> ... it was the time of 'the lucky country', real national product was expected to grow by 5% a year, the 17-22 age group was forecast to increase by almost 50% in 12 years and the percentage of tertiary students in that age group to grow at a similar rate.[4]

Community attitudes towards growth in higher education were also supportive, the conventional wisdom holding that greater expenditure on higher education and research would generate further economic growth.

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[1] Royal Commission on Australian Government Administration. Canberra, 1976, Vol.1, p.380.
[2] ibid. p.377.
[3] B.R.Williams, 'Why All Those Inquiries into Education?' Search, Vol.9, No.3, March 1978, p.87.
[4] ibid.

Under such circumstances, the Martin Committee could readily recommend dramatic expansion in developments and finance for tertiary education.

By contrast, the Williams Committee was initiated in 1977 largely to prescribe policies for a gravely changed situation. As Williams himself observed, his and the concurrent 'round' of State post-secondary inquiries were largely attributable to four things:'... demographic changes, economic recession, the creation of new problems by the very success of the developments that followed the earlier round of inquiries [Murray and Martin] and new aspirations'.[1] The supportive community attitudes of the Martin era had evaporated to be replaced by dissatifaction verging on hostility and a distracting concern with youth unemployment and training. All of this then, demonstrates the critical importance of the economic and demographic context within which an inquiry emerges and is set.

It is beyond the scope of this paper to do more than speculate briefly on the key contributing factors which triggered the six inquiries. Undoubtedly, the significant but unco-ordinated war-time expansion of Commonwealth educational activities, together with growing doubts about their constitutional validity, were crucial triggering elements in the creation of the Walker Committee.[2] Tannock has emphasised the Minister for War Organisation of Industry, John Dedman's important personal role. The vital importance of personal leadership by politicians in the initiation and support of some other committees becomes increasingly clear as one examines them. The centrality of the role of Menzies in initiating the Murray Committee and of Whitlam in the Karmel Committee have been well documented.[3]

The strength of commitment to education of both Menzies and Whitlam were critical factors in the evolution of Commonwealth education policy. So, too, was their conviction of the value of committees of inquiry and statutory advisory commissions as instruments to inform education policy-making.[4] Thus Menzies in 1961 implemented the recommendation of his recently created Australian Universities Commission (AUC) by appointing a Committee of the AUC [Martin Committee] to review the future of tertiary education in Australia.[5]

Whilst public pressure was conspicuously absent from the origins of the Walker, Murray and Martin committees, it was quite conspicuous as a force promoting the emergence of the other three reports. Public concern about the 'crisis in the schools' played a major role in Whitlam's success in having the Schools Commission plank inserted in the ALP platform in 1969 and highlighted in his 1972 election speech. In the 1972 election campaign, Prime Minister William McMahon, in response to mounting demands, promised $10m for technical education. It is said that Whitlam, on discovering that his party had no policy in the TAFE area, and recognising its growing importance, decided to counter McMahon's 'ad hoc' promise by establishing an advisory committee under Kangan.[6] Given Whitlam's penchant for statutory commissions it is likely that he probably viewed the Kangan Committee as an interim body much like the Karmel and Fry Committees and soon to be replaced by permanent commissions in the TAFE, Schools and Pre-Schools areas respectively.

The origins of the Williams inquiry are complex but growing public hostility to higher education, demography, economic recession, suspected excessive post-secondary expansion and the felt need for a major review of post-secondary education, were all probably contributing factors. Growing youth unemployment, in particular, had given rise to a view amongst some groups in the community - especially in industry and the bureaucracy - that there was a growing mis-match between the education system's 'products' and the needs of employers and society. According to Malcolm Fraser, the committee would, *inter alia* inquire into '... the purposes of education ... [and] the appropriate relationship between education and the economy'[7]. Concern about youth unemployment no doubt prompted the Department of Employment and Industrial Relations to press for an inquiry into training. It is probable that Fraser played an important initiatory role in the inquiry which was sponsored by, and housed within, the Prime Minister's Department. In addition to his disenchantment with perceived dysfunction between education and the economy, Fraser's conscious emulation of Menzies may well have extended to a perceived parallel between Menzies and the Martin Report and Fraser and the Williams Report.

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[1] Williams, Search. p.87.

[2] Tannock, pp.4-6.

[3] Bob Bessant, 'Menzies and Education in Australia', Melbourne Studies in Education, 1977, p.93. D.Tomlinson, 'The Liberal Party" Politics and Education Policy', Australian Education Review, No.8, Melbourne, ACER, 1977. J.K.Matthews and R.T.Fitzgerald, Educational Policy and Political Platform: The ALP Government, Australian Education Review, Vol.7, No.4, Melbourne, ACER, 1975. Patrick Weller, 'The Establishment of the Schools Commission', in IKF Birch and D.Smart, The Commonwealth Government and Education 1964-1976: Political Initiatives and Developments, Drummond, Melbourne, 1977.

[4] Weller, p.53.

[5] Andrew Bain, 'The Martin Report and Its Implementation', B.A. (Hons.) thesis, ANU, 1971, p.3.

[6] W.J.Howse, 'Commonwealth Government Intervention in TAFE', in Harman and Smart, ibid.

[7] Parliamentary Debates, H.R. 10 September 1976, p.878.

It is often said that governments sometimes create committees to avoid or postpone taking difficult decisions. There is little evidence to suggest that any of these six committees was specifically created for such a purpose. Though Gough Whitlam argued that the haste with which the Williams' Committee's terms of reference were put together, reflected the fact that the Committee was really a device for 'relieving pressure' on the government for the next 18 months over the serious state of youth unemployment.

4. TERMS OF REFERENCE

It is difficult to generalise usefully about the terms of reference of committees of inquiry. There is little empirical research on how they get drafted. We do know that terms of reference tend to be drafted by senior departmental officers (usually the permanent head) in consultation with the Minister. Thus, for example, the Karmel Committee's terms of reference were drafted by the permanent secretary-designate of the Education Department, Ken Jones, in consultation with the Prime Minister, Gough Whitlam and the Minister for Education-designate, Kim Beazley. They went through several drafts and the ultimate terms of reference were altered by the addition of several key phrases well after the inquiry commenced.[1]

Kogan and Packwood argue that in the UK ad hoc committees tend to have narrower and more specific terms of reference than statutory commissions (or Councils).[2] However, Australian committees of inquiry seem to have been given fairly broad terms of reference in general. The earlier committees (Walker, Murray and Martin) were given fairly brief and simple remits of a broad general nature. Thus, for example, the Martin Committee which had the briefest terms of reference of the three was 'simply' required to '... consider the pattern of tertiary education in relation to the needs and resources of Australia and make recommendations to the Australian Universities Commission on the future development of tertiary education'! The Karmel Committee began the trend towards lengthier and more specific terms of reference. Kangan was similar and the Williams inquiry's terms resembled a small, if somewhat disjointed, treatise. All three, however, had an area of inquiry of broad scope. The Williams terms of reference were widely criticised for their disjointedness and all-embracing nature. Their disjointedness gave some credibility to the ALP charges that they were drafted hastily and inexpertly. They seem to reflect input from the Department of Employment as well as from Prime Minister's - though without the expertise normally associated with public service drafting. Were they drafted by Fraser's political staffers or by his public servants?

Understanding committees of inquiry in retrospect is somewhat like putting the pieces of a jigzaw puzzle back together. Knowing the political, economic, social and demographic context helps one understand why the terms of reference were drafted as they were. Another useful piece of information is 'who appointed the committee and who was it to report to?' Interestingly, of the six committees under consideration, only one was appointed by the Minister for Education. This, of course, was partly because there was no Minister for Education (and Science) until 1966. Prior to that the Prime Minister usually exercised responsibility for education matters and appointed the committees (except the Walker Committee which was appointed by Dedman). Both the Karmel and Williams Committees were appointed by the Prime Minister. The six Committees reported to a variety of different authorities. Kangan and Karmel reported to the Minister for Education, Martin to the AUC, Walker to the Production Executive of Cabinet and Murray and Williams to the Prime Minister. It is the Williams Committee, again, which inspires most questions. Why did the Prime Minister not give the responsibility for appointing and receiving the report to the Minister for Education? Presumably he saw the committee's brief (incorporating training as well as education) as broader than just education but it also raises the question of whether it reflected his disenchantment with education and whether he may have seen it as an inquiry from which he could potentially gain substantial personal kudos. After all, he likened it to the Martin Committee in terms of its long-term planning function and he was aware of the kudos which Menzies derived from his close association with the Murray and Martin reports. Interestingly, senior Education Department bureaucrats were relieved not to be associated with what they believed could be a 'disaster'. Some cynics would argue that by the time the Williams report was due for tabling, Fraser realised it would have little personal pay-off and promptly dumped most of the responsibility for its publicity and implementation upon the hapless Minister for Education and his department.

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[1] Weller, p.55.

[2] Kogan and Packwood, pp.4-5.

5. MEMBERSHIP OF COMMITTEES

The membership of committees is one of the very key clues to the jig-saw. Reports are frequently used by policy-makers as a means of legitimating new practices, structures and procedures. For this reason, if a government wishes to ensure that a report is going to carry sufficient weight and credibility with the community to enable its easy implementation, it is important to appoint committee members with high standing and acceptability in society.

Chairmen, in particular, tend to be figures of some public prominence. Very senior academics chaired 12 of the 28 education committees analysed by Kogan and Packwood in the U.K.[1] Perhaps our Australian predilection for appointing senior academics as chairmen stems from the widespread British practice and from Menzies' precedent in appointing Murray - for that committee inevitably became something of a prototype. The Kangan Committee was the only committee of the six under review which did not have a senior academic as its chairman. Presumably, the TAFE area and its problems were so intertwined with issues of training and employment that the Minister decided Myer Kangan, with his wealth of experience as Deputy-Secretary of the Commonwealth Department of Labour was a more appropriate choice than an academic.

As in the UK, public servants and the minister usually determine the terms of reference, the chairmanship and membership in collaboration, though with the public servants doing most of the preliminary work. It seems that Chairmen are rarely consulted about the terms of reference or membership.[2] The two major criteria which govern selection of membership seem to be: 1) spread of relevant expertise and experience; and 2) some form of representation of interested parties and groups. The latter can be a very contentious issue. It may be recalled that there was a long and bitter parliamentary debate over the appropriate method of selection of members for the Schools Commission when that Bill was before Parliament in 1973. Kim Beazley, as Minister for Education, was ultimately successful in retaining the right of the Minister to appoint an 'expert' committee rather than adopt the Opposition amendments seeking a Commission which was little more than a 'Sanhedrin of pressure groups'.[3]

TABLE I CHARACTERISTICS OF COMMITTEE MEMBERSHIP

Characteristics of Members	Walker	Murray	Martin	Karmel	Kangan	Williams
Total No. of Members	8	5	17*	10	11	10
Academics	4	3	12	3	1	3
Public Service	4	-	2	4	6	3
Graziers, Business & Industry	-	2	3	-	2	3
Union	-	-	-	1	2	1
Females	-	-	-	2	1	2
Private Schools	-	-	-	2	--	-

*Actual membership 15, with one member having retired and one having died.

Note 1: The overlap with the Female category is the cause of the sum of each category being greater than the total number of members in some cases.

Note 2: Members of the Universities Commission and WAPSEC are listed as academics not public servants. Additionally, members of the Walker Committee who were academics drafted to the bureaucracy for the war effort are counted as academics.

Kogan & Packwood, p.29.

ibid. p.31. However, there are exceptions. For example, Karmel accepted his post on condition that Jean Blackburn (who had worked with him on the S.A. Inquiry) be made a member.

For a more detailed discussion of this see: Weller, pp.59.66-68 and Kim Beazley, 'The Labor Party in Opposition and Government,' in Birch and Smart, op.cit. pp.100-102.

Table 1 is largely self-explanatory. With the exception of Murray (5) and Martin (15), the committees ranged between 8 and 11 members - a size comparable with that found appropriate for most of the Commonwealth' statutory education commissions in the past.[1] Whilst academics predominated in the first three committees, there was a clear tendency to broaden the categories of representation in the final three committees. Thus, Karmel, Kangan and Williams heralded the arrival of female and union committee members. Note that academic, public service and business are the predominant categories from which members tend to be drawn. Perhaps in keeping with the Menzies 'grand style', the Martin Committee had the most distinguished committee in terms of knighthoods, professorship and doctorates. Of the total membership of the six committees (59) more than half came from Melbourne (17) and Sydney (17).

Following on the British civil service pattern, the secretariats of most of the Committees were provided largely from within the public service. Consistent with both the growth of the Commonwealth Education bureaucracy and the growing complexity of their tasks, the size of secretariats of the later committees tended to be much larger. The Williams Committee was the first committee to be significantly outnumbered by its 15 person secretariat.

6. MAJOR STRUCTURAL RECOMMENDATIONS OF THE COMMITTEES & THEIR IMPLEMENTATION.

TABLE 2 COMMITTEE RECOMMENDATIONS AND GOVERNMENT RESPONSES CONCERNING NEW STATUTORY BODIES.

	Walker	Murray	Martin	Karmel	Kangan	Williams
New Statutory Bodies Recommended by Committees.	COE	AUC	TEC	SC	TAFEC	-
Government's Response	✓	✓	CACAE ↓ CAE	✓	✓	

Time and space preclude more than a brief look at the major structural recommendations of the committees and the response by governments. Table 2 summarises the recommendations and responses with respect to creation of new statutory bodies. The pattern we see, in effect, is one in which each of the six committees, except Williams, recommended the creation of one major Commonwealth statutory authority to co-ordinate national planning activity within the sphere/sector of education on which it had been reporting. All received a favourable response from government with the exception of the Martin Committee. That Committee saw its proposal for a Tertiary Education Commission overarching a trinary Commonwealth aided tertiary system of Universities, Colleges and Teachers Colleges rejected in favour of a Commonwealth aided binary system of universities and colleges with the States being left to shoulder the full burden of teachers colleges. The CACAE was to be created for the colleges as a parallel advisory body to the AUC and was ultimately upgraded to a full statutory authority (CAE) in 1971. In effect, The Murray, Martin, Karmel and Kangan Committees all found themselves arguing (within a social, economic, political and educational context sympathetic to expansion and development) for an increased national government involvement within their sector of reference. They argued with great success that the Commonwealth could best make its contribution through novel or additional financial programmes, planned and co-ordinated by the new statutory advisory bodies which they recommended.

Nilsson and Sheldrake have suggested that in the post-secondary field successive committees had to be created by governments to make recommendations for new sectors and institutions to be created in order to overcome the failures of their predecessors.[2] Thus Martin sought to create a CAE sector to strengthen the applied technology area neglected by the dominant university sector, following Murray. Then as the CAEs grew and became more like universities the Commonwealth had to appoint a Kangan Committee to recommend a new TAFE sector which would provide the applied technical education which the Martin Committee had intended the CAEs to do. It is interesting to ask why the Williams Committee did not conform to the Nilsson and Sheldrake pattern ('when in doubt create another kind of institution') by recommending the creation of a Community Colleges sector.[3] Undoubtedly the adverse economic and political context for higher education made any such recommendation unlikely and so whilst Williams extended luke-warm support to the concept, it recommended no major changes, apart from 'contracting', to the existing processes and structures for administering post-secondary education.[4] Without

[1] For a commentary on the appropriate size of education commissions see Ian Birch and Don Smart, 'National Educational Policy Formulation - An Interview Approach', ERDC Research Report, 1980.

[2] Neil Nilsson and Peter Sheldrake, 'Enquiry into Post-Secondary Enquiries', Occasional Paper No.5. Educational Research Unit, Flinders University, May 1977, pp.B 2-4.

[3] Ibid. pp.B.26.

[4] Williams Report. Vol.1, pp.775-782.

going into details, it can be said that by and large the committees were highly successful in securing the new or increased levels of funding which they had recommended to governments.

7. THE IMPACT AND INFLUENCE OF THE REPORTS.

In a recent article on 'Australia in the 1980s' The Australian's higher education editor, John Bremer declared:[1]

> As a final wish rather than a prediction, could the 1980s pass without the appointment of an educational commission or inquiry, and could the disposition of those that were held in the past decade be finally acted upon or laid to rest.

The sentiments expressed by Bremer are no doubt widely shared in our community. His statement acknowledges the fact that the increasingly frequent creation of education commissions and committees of inquiry has become an institutionalised feature of Australian educational policy-making and governance at State and Federal levels. Furthermore, it implies that those that have emerged and reported over the past decade have not been seriously implemented by governments. No doubt there is much truth in what Bremer says - particularly in so far as it relates to the plethora of state inquiries into post-secondary education.

However, it would be a pity if Bremer's remarks were to reinforce or leave the impression on his readers that most educational reports in Australia are and have been ineffectual and a waste of time. I would argue that history suggests otherwise - at least in so far as national reports on education are concerned. Though I would concede that in very recent times (perhaps since 1975 but not the whole decade) national and state reports seem to have been less influential, perhaps, as Bremer seems to imply, because they have been over-used, but more, I think, because of the changed contextual circumstances.

Let me then, very briefly, spell out a few major elements of the impact of the six reports under discussion. First and foremost, they have been the key instruments of legitimation by means of which the Commonwealth, since the second world war, has propelled itself from a peripheral to a major involvement in most areas of Australian education. Largely by dint of economic and demographic circumstances and not by virtue of any grand Commonwealth design, each committee has made recommendations upon which the Commonwealth has acted, the incremental effect of which has been to push the Commonwealth into a strategically central role in national educational policy-making. For gradually, each of the major Australian educational sectors has acquired an education commission- commissions which are charged with overviewing, planning, reporting and recommending Commonwealth funding for their particular sectors. Inevitably, with the growth of the Commonwealth's share of education funding and the arrival of economic educational and demographic recession, the resultant 'putting' on of the expenditure brakes has led to attempts at tighter co-ordination within and between sectors and commissions (e.g. creation of the TEC). The ultimate result has been the gradual development of a more integrated national system of education - at least in so far as broad planning and funding policy is concerned.

If one asks why the Committees were so influential in the sense of having their expansive recommendations largely adopted, the answer seems to lie largely in the benign economic and demographic environment and the sympathetic political leadership which they encountered. Clearly, a Williams or Auchmuty committee in the present/changed environment would be unrealistic to expect to make recommendations which would involve the Commonwealth in the creation of major new statutory bodies or the expenditure of major additional sums of money.

In terms of impact to date, it is difficult to discriminate between the committees because (with the exception of Williams where it is too early to tell) they have all been enormously influential in promoting change. However, in the post-secondary sector, the Martin report must stand out as a major landmark - the creation of the CAE sub-sector has had enormous consequences for the whole tertiary sector and is largely responsible for the ultimate co-ordination of that sector by the specially created TEC. Similarly, in the Schools and TAFE sectors the Karmel and Kangan reports set in motion policies and programs whose momentum and effects are still very much with us today.

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[1] Australian, 27 August 1980.

FROM SCHOOL TO WHAT?

THE CASE FOR TREBLING OUR OPTIONS

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In the last three years we have seen the growth of a small industry which has provided continuing part-time work for some older people. This industry concerns itself with analysing and writing papers about the problems of younger people. Such phrases as "the school-work interface", "from school to work or unemployment", are becoming cliches among this group.

While searching for a new phrase to offer as a title for this paper I found myself probing apparent assumptions contained in the cliches; and the one I kept returning to was the assumption that school came first, and work came after. This has been accepted in our societies for at least the last century -- schooling is what you do in the first two decades of your life, and work is what you do for the rest of your life. Even when the phrases go further and talk of "unemployment", they are looking at a negative condition of which work is the positive; and those who add "further education" are thinking of it as a means of procuring work.

Many of our attitudes to living seem to be bounded by this general framework, that one's life is governed by two main elements: schooling in childhood, and work for adults.

But structural changes are occurring in our society which will make it necessary for us to change our attitudes and the framework itself. Work will no longer be the main element in our adult life; and schooling can no longer be limited to our childhood and youth. In fact there is a very strong case for us to treble our options as adults, from work alone, to work plus leisure plus lifelong learning. If we could change our attitudes, and teach today's children to think in these terms, many of the problems at the school-work interface, and in the larger society, would disappear.

In order to examine these ideas the rest of this paper is divided into three sections. In the first, evidence is presented to show the structural changes that are taking place around us, changes which imply lifestyles that are different from those we have been trained to accept. Section Two looks at the work situation, and then at the alternatives to our current attitudes and lifestyles, which would incorporate the triple concept of work-leisure-lifelong learning, a major factor in overcoming social problems that now seem intractable. The third section proposes a system of recurrent education that would serve many functions, and would be the education system's contribution to the changing attitudes and life-styles.

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Part One. Structural changes are taking place in Western societies which affect our concept of work. In fact by one analysis we are entering what could be said to be the third era of man. These three eras relate to the amount of work man has to perform relative to his productive capacity, and they can be divided for the present into the pre-industrial era, the industrial, and the post-industrial.

In the first, the pre-industrial period which starts from mankind's beginnings in pre-history to about the eighteenth century, man's productive capacity was limited to what he could do by using his hands and his brain (and with his brain he introduced many methods of increasing his productivity, such as using

horses, slaves, and increasingly more sophisticated tools). But about 200 years ago man invented machines of mass production, which produced far more than man ever could before. This was the industrial era, where man had not only his hands and his brain, but machines that were extensions of his hands.

Then about thirty years ago man invented the computer and initiated the third era in our development. For the computer is the extension of man's brain; it not only increases our productive capacity again, but brings about profound qualitative changes. Whereas the industrial revolution generated the biggest changes to human lifestyles in mankind's history, the computer revolution will probably produce changes even more far-reaching.

Dr. Christopher Evans, a computer scientist, sees the introduction of computer based technology (CBT) as heralding the "emancipation of Man from the need to work for his living" (Evans, 140). But what is happening in the short term is that thousands of industrial-era jobs are being wiped out, and being replaced by hundreds of computer-era jobs. As a result many adults are finding themselves out of work and unable to get another job, and many teenagers are unable to enter the work force at all. The short term social effect is high unemployment.

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While ultimately it is the computer which is going to determine the structural changes in our lives, at least two other major factors converged in the 1970s to compound the unemployment problem. Both sets of occurrences should have been seen as inevitable. The more visible of the two was the emergence of the OPEC group with the consequent oil price rises starting in 1974, which have resulted in the removal of cash, and a continuing recession in most Western and oil-buying countries.

Petroleum by-products are used in the manufacture of more than 70,000 commodities and the rising oil prices are passed on through all of these as well as through the direct costs to all users of oil in industry. Costs are also felt directly by car owners, and indirectly through public transport, while higher transport costs for goods are passed on through all commodities. This has been the pattern for six years now, and these continuing high prices lead to consumer wariness, as people stop buying new goods so readily.

High running costs, increases in cost of materials, and consumer cutback result in many firms being put out of business, and people out of work. Two examples of this locally are the closure of the EMI colour TV plant in December 1977, because of falling sales, when 350 people lost their jobs; and by mid 1978 Philips Industries had cut its staff "to fit reduced levels of demand", and 664 people lost their jobs. (Sydney Morning Herald, 13.12.77; and 11.4.78.) There have been other well-publicised examples of staff retrenchment in the face of falling sales in the past months, car manufacturers and retail groups being among them. The growth of unemployment has been widespread, and aggravates the problem of consumer confidence; thus the effects spread.

Among the manufacturing industries of the Western world, another major problem has been surfacing in the 1970s. This is the growth of manufacturing in the underdeveloped countries of the world, in particular for Australia half a dozen countries around the south-eastern edge of Asia (OECD, 209-212). I could give another paper on all the issues raised by this factor alone, and one or two things need to be said before elaborating this point. In October 1975 the hundred poorest countries of the United Nations tabled a Report asking that by the year 2000 the disparity in wealth between rich and poor nations be halved. The

poverty in these countries is still so extreme that all attempts by them to industrialise can only be applauded, even if at present the workers themselves get very little from the growing prosperity of their nations.

Low wages are the main reason that the industrialisation of these countries has taken place so rapidly in the past decade. Professor Wheelwright reported in 1978 that wages in the Philippines rarely exceed $2 per day (Wheelwright,29). There is no way that Australian manufacturing industries can compete with this, and even with the protectionist policies on textiles, clothing and footwear, these goods imported from south-east Asia can still be sold more cheaply than the locally-produced. But if the protection to these three manufacturing areas is lifted in the next year or two, the Industries Assistance Commission estimates that the jobs of at least 30,000 Australians will be lost. (SMH, 16.8.80)

However, many manufacturing industries have already quit the Western countries and are setting up in the underdeveloped countries because of the low labour costs. Keith Windschuttle quotes from the Journal of Industry and Commerce a list of twenty major Australian firms that have moved some of their operations, and jobs, to south-east Asia. They include BHP, Clyde Industries, Burns Philp, Pioneer Concrete, H.C. Sleigh, Wormald, and so on (Windschuttle, 32). Manufacturing employment has declined from 27.6% of the total Australian workforce in 1966, to 26.5 in 1971, 21.8 in 1977, and 20.1% in May 1980 (Windschuttle, 30; ABS, May 1980 (6203), 18).

For the quarter of a century until the OPEC oil shock in 1974 the developed countries of the world were using cheap energy as if the resources were infinite. But not only have we now been warned that these and other resources are finite, we know that there will never be another era of abundant and cheap energy. Until the 1970s most of the world's non-renewable resources were used by about one fifth of the world's people, but now the other four-fifths are starting to demand a fairer share. This means that the earth's finite resources are going to be in ever-dwindling supply, and with the competition prices will continue to rise.

The unemployment trends of the past six years will be hard to reverse in this climate, even if the facts of OPEC and the industrialisation of the underdeveloped countries were the only factors. But if and when the manufacturing sector in Australia changes direction and gets into top production again, it will be with machines, not men and women. Neither increases in investment nor increases in productivity can any longer guarantee increased employment of any significance. In February 1978 the Organisation for Economic Co-Operation and Development, of which Australia is a member, told Australian government officials that "growth in OECD countries from now on will be in capital-intensive, labour-saving technology which will do little to solve the unemployment problems". (National Times, 4.3.78) The post-industrial era will be affecting Australia increasingly in the 1980s.

Australia's first eleven computers were installed in 1958, and the number had increased to 1000 by 1970 and 3000 in 1978. By this year the US Department of Commerce predicted that the Australian market for small business systems and minicomputers alone would be 16, 000 machines (Blacktown Technical College, 4-6; The Australian, 8.8.72). Minicomputers and microprocessors will enable the growth to continue just as dramatically in the 1980s.

Let us consider the structural changes that the computer is bringing to some industrial and occupational sectors.

Clerical. In the past two to three years the word processor has become the best-known of the new developments. Word processors are office systems based on small computers which can perform all office routines of today's clerical staff, including accounting operations. In 1978 the multinational firm of Siemens completed a study for the West German Government. Asked to report on the likely effect of word processors on clerical jobs, Siemens' findings were that 40% of such jobs would be gone by 1990. This would mean that two million of the five million clerical jobs in West Germany would be lost in this decade. (New Scientist, 8.8.78,650)

In 1979 the Australian Department of Employment and Youth Affairs put out its own estimate of local impacts of word processors (Dept of Employment...,249-251). The Department concluded that the ratio of five positions lost to one replacement as "put forward by many suppliers" is too high, and that the actual ratio will be nearer 2½ or 3 to 1. That is between 6 and 7 out of every 10 Australian clerical jobs could be lost to the word processor. More than one million of Australia's six and a quarter million workers are in clerical jobs (ABS, May 1980 (6203),17).

Manufacturing. In a study done through the Department of Town Planning at the University of New South Wales, taking in a period of industrial upturn in 1976, it was found that the number of factories opened in Sydney had increased by 102, but the number of employees had decreased by 18, 420. Production techniques are increasingly being taken over by CBT; in the Australian petrochemical industry between 1974 and 1977 production increased by 2% while the workforce decreased by 7.4% (Windschuttle, 34-35).

CBT in manufacturing implies fully-automated work, and the 1980s will be the decade of robotics (Evans, Chapter 11). While computers remained large, robots were impracticable, but the microprocessor allows them to become smaller, more reliable, and very much cheaper than the human worker. "Jobs which have, up to the present, been largely unaffected by the advance of automation are those in which the role of the human is to control and guide a machine". These are the jobs that the robot will take over. "As the 1980s unfold, the man-machine partnership...will be elbowed aside by the first true industrial robots" (Evans, 149). Although the proportion of Australians working in manufacturing has declined from more than 1 in 4 to just 1 in 5, we can expect to see a further proportional decline. One and a quarter million people currently work in the manufacturing industry, a large percentage being semi-skilled and unskilled.

Wholesaling-Retailing. Point of sale computer terminals (the "check and wrap" counters where there used to be cash registers) not only record details of a sale, and check the account customer's credit, they can make the relevant stocktaking alterations, re-order the items sold, do the accounting, alert the warehouse computer which can set in train the delivery of replacement items; and in the near future they will alert the computer at the account customer's bank, which will debit the amount of the purchase directly against the account customer's bank balance. All of these jobs can make redundant the jobs of many staff in sales, buying, stock-keeping, accounts, as well as storemen and packers, and bank clerks. Jobs in the wholesaling-retailing sector grew by 93,000 between August 1977 and November 1979, keeping pace with the growth of the labour force; but 53,000 of the new jobs were part-time and only 40,000 were fulltime. In just over two years part-time workers increased from 20% to 23% of the wholesale-retail sector, which currently employs one in five of the Australian workforce, a few thousand more than the manufacturing sector (ABS, 1977(6204),14,51; ABS, November 1979 (6203),15).

There is no time to do more than mention other major occupational and industrial groups where the computer will be having a growing impact on the structure of employment, and especially the numbers employ-

ed. The finance and other business services sectors are already experiencing the changes being brought about by digital computers, word processors, and other business systems run by computers. In larger firms centralised data systems which transmit information anywhere within the nation (and overseas as the satellite systems develop) will cut the number of employees needed at all branch offices. Automatic telling machines introduced to Australia by credit unions, and first used by a bank here in May this year are worrying bank officers' associations.

Printing and telecommunications industries are finding entire industrial groups are no longer needed with the introduction of computer-based printing which have data terminals and video display units that can be used by journalists instead of printers. Journalists are finding that facsimile printing will be able to syndicate newspapers across a nation, doing away with the need for all but a few local journalists. Electronic mail which can be typed on one word-processor and received by a target office computer within seconds, will render many postal workers redundant. Within a decade any business without this aid, according to Evans, "will be about as competitive as one which tries to operate without a telephone today" (Evans, 141).

The range of applications of the microprocessor is almost universal. And this fact in conjunction with the other economic and resources considerations I have already set down, is going to mean a continuing net loss of jobs. That jobs will be lost was acknowledged quite freely in the Myers Report, but that Committee along with other enthusiasts make the point that new job not yet thought of will grow out of the technological innovations of which the computer is the centre.

Peter Stubbs, an economist commissioned by the Australian Industries Development Association to research and write on Australia's futures with technology, argues for all the enthusiasts when he urges us to look at historical lessons, for "past experience tells us that technical change does not impoverish, but generally enriches our range of choice. Population and numbers in employment have risen steadily, and working conditions and hours have improved" (Stubbs,112). But quite apart from glossing over the struggles necessary to improve hours and working conditions, Stubbs, in common with many other economists, technologists, politicians, and businessmen, is arguing from an industrial era standpoint. They have not yet realised that the computer is taking us into a qualitatively different era, which has no historical precedents. Nor will we have colonies to provide large quantities of cheap resources, with their inhabitants content to live in extreme poverty while doing so. We can no longer look back to history for precedents.

Human beings will be needed to program computers, to service them, and to run new industries, but these will only be a fraction of the number of people that computers will replace. For this is the whole point about the computer - above every other consideration in any industry, the computer is a labour-saving device, it cuts down on labour costs because it replaces people. It not only stores more information, processes it and recalls it more quickly and more accurately, and wipes off old and programs in new information, better than people; it can do it twenty-four hours a day, seven days a week, with no sick pay, holidays, long service leave, superannuation or strikes.

* * * *

Part Two. From the end of World War II until 1974, the unemployment level in Australia ranged between 1 and 2½%. (National Times, 9.7.77) In November 1974 it rose to 3.7%, and has not since fallen below 4%. By February 1976 it was 5.4%, in May 1978 6.2%, and in May 1980 it was still 6.2%. For six years there have been, continuously, hundreds of thousands of people with no job (ABS, 1978 (6204),12; ABS, May

1980 (6203), 10).

For 15-19 year-olds unemployment has remained consistently higher than for the rest of us. In November 1974, this group's unemployment rate was 12%, by May 1978 it was 16%, and in May this year 16.5%. But this did not include more than twenty-two thousand 15-19 year-olds who were looking for work but had returned to school. If these are included in the numbers for May 1980, one in every three persons looking for work is aged between 15 and 19 (ABS, May 1978 (6203),5; ABS, May 80 (6203),13).

In February-March 1974, the job vacancies numbered 165,200, with 155,000 unemployed; one year later the number of jobs available had dropped to 55,000, while the unemployed had risen to 333,000.

By February-March 1976, with 342,000 out of work, the job vacancies had dropped again, to 45,700.

In May 1980 the number of unemployed was 413,000, the job vacancies 30,000 (ABS,March 1976 (6.58); 2; ABS, February 1974 (6.4),12; ABS, May 1978 (6213),13; ABS, 1977 (6204) 16-17; ABS, May 1980 (6203),10,32).

	UNEMPLOYMENT (%)	
	15-19	Total
Nov 1974	12	3.7
Feb 1976		5.4
May 1978	16	6.2
May 1980	16.5	6.2

UNEMPLOYMENT & JOB VACANCIES (000s)		
Feb-Mar		
1974	155.0	165.2
1975	333.0	55.2
1976	342.0	45.7
May		
1980	413.0	29.8

Even if the percentage of unemployed remains the same, the numbers of unemployed people are growing by the thousand as more people come into the labour force each year. And there are several points to remember when thinking of unemployment figures. The Bureau of Statistics is trying to keep the figures as low as possible. For example, there are the 22,000 teenagers looking for work but attending school who were not counted as unemployed in the figures for May 1980. Also, since 1978 anyone who worked for <u>one</u> hour in the week of the survey, even if registered as unemployed and wanting a job (and even if paid in kind), was counted as employed. In May 1980, 474,000 people worked between one and fifteen hours in the week surveyed (the figures are not broken down any further than that). (ABS, May 1980 (6203), 3, 18)

A third problem to note is that of underemployment. One way to look for this is in the figures of part-time workers who would prefer to be working more hours. In May 143,900 people were in this category (ABS, May 1980 (6203),21).

A fourth and possibly more serious set of figures from a social viewpoint includes people who have stopped registering for work and who are officially known as "discouraged jobseekers". The September 1979 survey, the latest available at the time of writing, revealed that there were 74,000 people in this category -- but they are not listed as unemployed. From this survey it is also possible to make some assessment of the group known as the "hidden unemployed", those who would probably come on to the job market if there were an upsurge in job numbers. The people who said they "wanted a job" but had not taken active steps to find one totalled more than 600,000. They are not on any list of unemployed (ABS, Sept 1979 (6220),4).

These five groups at least, the uncounted teenagers, those who worked one or two hours but are unemployed, the underemployed, the discouraged job-seekers, and the other hidden unemployed, do not show up on any Australian figures for unemployment. Yet all want a greater share of the work available. It is

important to remember these people when looking at the official unemployment figures.

Still another point to note is the increasing length of time that people remain out of work. In May 1978 the average length of unemployment was 23.6 weeks. By May 1980 this had risen to 29.6 weeks, more than half a year (ABS, May 1978 (6203),19; ABS, May 1980 (6203),24).

Which leads to the final thought I wish to proffer concerning unemployment. For several years about 400,000 people have been out of work; but they would not have always been the same 400,000. Thus in the past few years it is likely that a large percentage of Australian workers have learned what it is like to be out of a job, much larger than the unemployment percentages indicate from month to month.

For more than half a decade Australia has experienced a situation where hundreds of thousands of people have been looking for jobs when only tens of thousands of jobs have been available; and there is no end in sight to this situation. The last great depression ended in a world war. There is no way that a world war could be a solution this time; and in any case there has been no acknowledgement that we have a depression on our hands.

In fact what we do have is a changeover period from one era, the industrial, to another - the post-industrial, computer age. And the sooner society becomes aware of this, the sooner we shall be able to change to more appropriate lifestyles.

* * * *

In the post-industrial computer age large workforces will no longer be needed in manufacturing, mining, commerce and retailing. The total number of working hours available in our society is decreasing and different strategies will have to be adopted to occupy the waking hours of our largely urban population. But it is not an alternative to suggest that a percentage of the population be paid not to work, since the divisiveness created between the two groups, the workers and the non-workers, would be too great a strain for any society.

Alternatives entail social planning; and job creation would be one part of the plans. New jobs would be in service industries, such as craft industries, leisure, upgrading the physical environment through council projects, and the psychological environment through paraprofessionals in social welfare schemes.

High technology is the hallmark of the post-industrial era, and Dr. Caelli is one computer expert who argues for the establishment of an Australian-based information industry - the amalgamation of tele-communications, computers and microelectronics (Caelli, 7-16). This could take the place of our ailing industrial-era manufacturing industries, for the high technology sector is still in its developmental stage worldwide.

However even if such plans came to fruition they would not take up the slack of unemployment. The semi-conductor and computer industries are becoming very capital-intensive, and will not produce large numbers of new jobs. (Financial Review, 22.8.80)

Job creation would be one of three areas in the overall planning. Another would concern the scheme to share the number of working hours available in society among the people who want to work; and the third would be an education plan whereby individuals might learn skills suitable for the post-industrial workforce.

There will be many industrial and social problems to tackle on the way to this solution, but a shorter working week or year or life is the only way that the work can be shared equitably. There is nothing immutable about the 40-hour week; our great-grandfathers worked a 72-hour week. We can learn to think of 25 hours as a full working week. Under the present structure nearly one million Australians work part-time, and another half million have no work at all.

Whatever is done, the most significant qualitative change for adults will be that our life will no longer be centred around work. In fact we are going to have to cut a large slice off the work ethic. Commitment to task will still have effect as long as we have a task to perform, but if we have a three-day working week, work will occupy a lesser place in our lives.

If we are to make a successful transition to post-industrial living we shall have to change our attitudes, to see leisure and lifelong learning (for new skills, for leisure, for pleasure), as being of equal importance with work. Our lives will alternate around work, leisure and learning, with each person finding her/his balance between the three areas, and possibly with considerable overlap.

* * * *

Part Three. To accommodate schooling to the social changes, it is recommended that post-industrial schooling include both compulsory schooling in childhood, and lifelong learning that may be taken in a continuing or recurring, individual pattern at any time in a person's life after compulsory schooling has finished. If lifelong learning is to be encouraged, the compulsory schooling will need to give children a more positive attitude to schooling than is the case with many school leavers today; thus compulsory schools will have to be places where all children succeed in their learning.

Lifelong learning could be implemented by the institution of education through a system of recurrent education, which would affiliate today's senior high schools, Tafes, community colleges, adult education and any privately-organised centres. This would by a system of open schooling in which anyone over 14 could sign up for courses, to study for one hour or twenty hours a week, for three months or three years, and choosing from hundreds of courses.

Recurrent education would fulfil many social and individual functions. People could be retraining in new skills and knowledge; or upgrading or updating in old areas. They could be filling in time (learning as leisure) or learning leisuretime pursuits (learning for leisure). They could be improving their skill or knowledge in studies that interest them; or doing prerequisite courses for academic, technological or professional education; or taking initial training course. Some could be getting the basic learning they failed to get when young (catch-up courses). Others could be learning about society, or themselves; or learning for community service and participation. One important function of recurrent education in the post-industrial world would be to provide a new service industry, since many more teachers would be required, not necessarily on a permanent or fulltime basis.

Since people could be going back to any sort of learning at any age, tertiary institutions would set out pre-requisites and organise their own entrance tests, freeing the senior secondary school from these requirements.

Problems to be overcome in providing recurrent education courses would include a need for greater flexibility in timetabling, in starting dates of courses and lengths of units, as well as greater attractiveness in presentation. Provision would need to be made for initial and follow-up counselling; for

introductory and bridging courses; and for training courses for the many experts who would become occasional teachers in such a system.

Liaison would be necessary with governments, employers, unions, community groups and individuals; and publicity would apprise people of the availability of courses. Paid educational leave would be part of the educational entitlements of all citizens - several countries have already legislated for limited schemes within the recurrent education pattern (OECD/CERI).

If students left their compulsory school at about 15, they could go straight into any sort of post-compulsory courses, while looking for a part-time job. Recurrent education would be one way that all adults of today could learn to adjust their attitudes, to cope with the post-industrial world that is taking shape around us.

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UNEMPLOYED YOUTH AND EDUCATION PROGRAMMES IN AUSTRALIA AND U.S.A. IN THE 1930s - LESSONS FROM THE PAST?

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I am one who believes that public work is to this generation what free land was to earlier generations. It is the means whereby the government undertakes to compensate for the apparent tendency of our economy to contract its employment opportunities. It is the means whereby the government undertakes to fulfill the first responsibility of a democracy, the responsibility of guaranteeing to every able-bodied individual a place in the national economy through which he may contribute to its wealth and receive in return his share of the national income.

Aubrey Williams
Director, National Youth Administration

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Without songs, architecture, history:
The emotions and superstitions of younger lands,
Her rivers of water drown among inland sands,
The river of her immense stupidity

Floods her monotonous tribes from Cairns to Perth.
In them at last the ultimate men arrive
Whose boast is not: "we live" but "we survive",
A type who will inhabit the dying earth.

A. D. Hope, "Australia" (1939)

Introduction

It would be easy to believe that youth unemployment is something new to Australian society, or that the responses to its problems are to be found in the conventional wisdom of our times. Yet there have been other periods of idle youth 1868-74; 1892-98; 1930-40; this paper examines the 1930s Depression, the period of Australia's highest youth unemployment and in particular what was the educational and training component of unemployed youth relief schemes.

Recently there has been a growing interest in the question of the historian's possible contribution to public policy. There are several areas of contribution (Checkland 1980) but one which defies controversy is that the historian 'can promote the informed and balanced mind, i.e. he can provide an educational experience for the policy-maker'. This paper seeks to perform this type of function. It also offers a comparative history as part of this function, that of American youth unemployment in the 1930s, because the New Deal period became an important focus for policy-makers in other social democracies. The increased acceptance of the use of comparative history can be seen in its function. Stretton (1969) sees its type of inquiry in history as a means to stimulate imagination. 'It is strongest as a choosing and provoling, not a proving device; a syrtem for questioning not answering'. It should be added that an Australian education and history of education, Australians have had a strong leaning to the comparative method for the study of educational problems. Finally the use of a comparative history can emphasize the study of differences amidst the common experiences of two or more nations; by studying these differences we can increase our understanding of Australian history.

USA and Australia : The Common Experience of the 1930s Depression

The world depression held distinct common problems for both countries. Its impact as measured by unemployment was significantly higher than most countries: Australia 33.3%; USA 31.8%; UK 24%; Canada 22%; Holland 26%; Germany 43% (UN% of all employees in 1932).

Recovery from the depression in both countries was amongst the slowest of nations, except in manufacturing industries, and youth unemployment remained as a significantly higher level than the level of unemployment for the whole decade. The depression's impact was also profound in its psychological dimensions. As new world nations, linked closely to the international economy, the work ethic had been particularly strong in US and Australia, and this was accentuated by the importance of physical work in the rural and mining industries. Although USA and Australia were at different stages of economic development in 1930, they were both unaccustomed to sustained periods of economic adversity, chronic poverty and social immobility. These were seen as the evils of the older European societies, not one built on variations of 'manifest destiny' - Go West Young Man!' The youth of these two nations had a special historical role. From its ranks had come the main thrust of the immigrant, the frontier pioneer, and the raw skills for rural and manufacturing industries.

As a result of these social configurations, both Australia and USA were least prepared of countries to deal with mass unemployment, unemployment being seen as alien to the national character, even though it was 8-10% in the 1920s! Other than progressive states like Queensland, or Wisconsin or Minnesota in USA there were no unemployment commissions no unemployment insurance or other measures to help alleviate the onslaught on human dignity that accompanied mass unemployment. Moreover, their political machinery, that of a federal system, was cumbersome to handle a national problem the consequences of which were first registered at local and state governments. Finally the problem of unemployed youth posed special problems. On the one hand the level of unemployed youth 15-24 years, was higher than the general level of unemployment in the Depression and it remained significantly higher throughout the 1930s.

Estimates of Youth Unemployment and General Unemployment
(% 15-24 years unemployed)

	1932	1935	1938
USA[1]	31.8% (34%)	23% (36%)	18.8% (30%)
Australia	33.5% (33%)	17% (35+%)[2]	8.7% (22+%)[3]

1 Rawick thesis
2 Victorian estimates : Blackmore study
3 NSW estimates : NSW Select Committee on Employment

Add to this, their vulnerability in the economy - 'blind alley' occupations, dismissals on attaining adult wages, longer duration of unemployment, decline of apprenticeships - youth unemployment was a major economic and social problem of the 1930s. On the otherhand there was recognition of the importance of youth in American and Australian societies, but an inherent mistrust of idle youth, free

of the discipline of work would pose a threat to social order. Victoria's Director of Education Hansen (1932) summed up this attitude for both countries:

> If these young people become disheartened and disillusioned in their vain search for openings to give them a start, the soil will be well prepared for the propogation of subversive, anti-social propaganda, and many will fall first into bad habits and them crime.

It was between these two poles that youth policies had to be determined for the 1930s.

The New Deal Approach to Youth Unemployment

America's response was through the work of the Civilian Conservation Corps C.C.C. (1933-1942) and the National Youth Administration (1935-1943). Both were creations of 'the New Deal' in American national history, both originated from President Roosevelt brains' trust, although the former had a touch of FDR's own imagination. There are many varied interpretations of the New Deal's place in history, but none more perceptive than Handlin (1963)

> The New Deal was the culmination of four decades of progressive development. I did not aim to overturn the old order according to any utopian design or abstract theory. Its major impulse was towards a reconstruction that would permit government to take positive steps towards a creation of a just society.

And it was orchestrated by President Roosevelt, the progressive incarnate, experimental and praqmatic, committed to no general theories or coherent policy, but animated by the impulse to service (ibid. 388) It was not just the man, and his attitudes, but his outward confidence in an age of despair. William Allen White (1933), the journalist, discovered it early in his presidency: 'it is not so much what he (FDR) does as the way he does it. The people will forgive mistakes. They will not forgive inaction, debate, cowardice, dilettante hesitation, splitting hairs'.

The Civilian Conservation Corps (CCC)

The CCC was a federally funded national program for unemployment relief and physical conservation, administered by the Department of War (Army) with the assistance of national departments of Labor, Forests and the US Office of Education (USOE). It took unemployed men, between age 17-26 years (and unemployed veterans) but predominantely 17-20 year old whites, predominantely from urban areas, and placed them in rural camps, in groups (companies) of 160 men, under the nine corps command of the US Army. There they were expected to work in forestation, national parks, construction or other conservation projects for which they were paid (most of it sent home), housed, fed, medically treated after 1934 and other types of education. They remained at the camps for 6 to 24 months and then were expected to find work.

Until quite recently the educational roles in the CCC were dismissed as being too narrowly based, too restrictive or subordinate to social relief and social control. The reasons for this view are several. First, the Army's control of the camps and its initial vehement opposition to an education role in the camps and its opposition to the USOE in Washington, has been a pervasive argument and

one not helped by the broadside of one Army leader:

> I have constantly fought the attempts of long-haired men and short-haired women to get in our camps ... we are going to be hounded to death by all sorts of educators. Instead of teaching the boys how to do an honest day's work we are going to be forced to accede to the wishes of the long-haired men and short-haired women and spend most of the time on some kind of an educational course. (Salmond: 1967)

Second, The denied ambitions of the USOE, and particularly its Commissioner John Studebaker, for a piece of the action in the CCC influenced the American educational establishment, to suggest that without USOE there cannot be a major educational contribution. Still others (Gower) saw little educational value in it because they feared it as a feint to involve the local schools in a federal program, a challenge to the sanctity of local control. Others complained that CCC had very little educational value because it was part-time, thereby ignoring both the tenants of adult education, or of on-the-job training, or just isolation of these camps from other aspects of community life. Another argument was that the educational role was a corruption of propaganda and self-justification, that it was not as prevalent or as significant as Frank Holland's The Schools in the Camp hoped in the education community. Yet Holland's study while a P.R. exercize, does not necessarily invalidate the significance of an education role in the CCC. Finally, there were opponents of the CCC who had taken sides in the educational nature for the CCC and NYA: the CCC was centralized authoritarian, therefore anti-education; the NYA was localized, democratic or liberal; therefore it had a strong educational component.

Over the last decade, the view of the CCC's educational contribution has begun to shift as historians have re-examined the CCC's national policies and introduced studies of the CCC's in local communities. Salmond (1967)

hinted that the CCC's educational contribution was more significant than generally suggested, but that a better picture would be found at the workface - the individual company camps or corps. Hendrickson(1976) confirmed this in a general study of CCC companies in Pennyslvania. From two different approaches Spaull is convinced of the existence of an important educational role. The first approach was to study contemporary evaluations of CCC educational activities in local areas, these evaluations being mainly graduate dissertations or scholarly research, presented between 1935-1942 and not the P.R. statements that are found in the professional journals of the period (e.g. School and Society or Phi. Delta Kappan). The second approach was to study the educational reports and other related sources, including collected personal assessment by CCC enrollees, in three corps areas; in effect to tap the national archives material at the corps level, not national policy level. Moreover, there are other recent studies by Putnam (1973) on the role of the Army and McCaffey and Maunder (1972) on the Forestry service in the CCC, which now suggest that the attitudes of their professional officers in the camps were not hostile to educational activities; indeed many of their numbers were involved in teaching and organization of general

and vocational educational activities.

The overall impression that can be re-constructed from recent studies indicates that after an initial shaky start - because the CCC was to be a short-term emergency programme - the educational component became an important factor in the men's lives. It occurred at three levels, on-the-job training; special courses which in many camps were compulsory, such as first aid, swimming, etc., and the formal educational after-work activities. In many of these activities the CCC camps reached out, or responded to the needs and interests of the young men in such a way that CCC educational advisers like Murphy (1939) could assert with confidence:

> The distinctive contribution of the Civilian Conservation Crops to education is the identification of learning and living. Schooling in CCC camps is not separable from life ... Education is not brought into the camp, but the activities of the camp are made educational.

Between 1935 and 1941 approximately 60 per cent of CCC enrollees (1.5 million men) partifipated in distinct 'education' programmes, for an average 4 hours per six-day week. Vocational training courses attracted between 45-55% of participants in these years, it became much higher after Defence Vocational Training was introduced in 1939. Participation in general education courses especially in primary and secondary school courses attracted 28-35% of CCC enrollees, with 90% enrolments by functional illiterates (2.5% - 3.5% of all CCC enrolments) in special literacy classes. Finally, between 20-25% of all CCC enrollees joined in leisure classes such as in photography, journalism, drama or current affairs groups.

The CCC's educational programme seemed to work, despite its political problems and physical shortages, because of the goodwill, enthusiasm and energies of its instructors, that army of 'New Dealers' beyond the sights of Washington and the state capitals. Moreover as Blakeslee (1939) reminded American educators:

> It is essential that it be borne in mind that the program was a growing one, it was in process of development, beginning from nothing, no instructors, no equipment, no buildings, no textbooks, no supplies, until by the close of the period of the study, it was being looked upon as a school of last resort ... In other terms, this organization was accomplishing in a period of less than five years, what developed in the public schools over a period of two hundred years.

The National Youth Administration (NYA)

Rawick saw the CCC as offering a solution to the problems of a small percent of youth so desperate and roofless as to be attracted to camp. The NYA was created to meet those who remained in the cities; those too young to join the CCC, those excluded from the CCC, officially because of sex, unofficially because of colour, and those who wanted to stay on at school. The origins of the NYA can be found in the Federal Emergency Relief Agency's support to youth. It made emergency grants to university students in 1934. It also sponsored and financed residential work and training camps for young women, and provided funds for unemployed youth to enrol in vocational education courses. These activities were collated into a youth programme by an Assistant Director of the WPA, Aubrey Williams, which became the NYA in 1935. It was to initiate work projects for unemployed youth (16-25 yrs) and assist students in their schooling.

The student aid programme operated at high school and university levels

(undergraduate and graduate) not as free tuition or student living allowances, but as a work programme. High school students over 16 years were to be paid up to $6 per month, university students up to $15 per month. However, only 12 per cent of all students were entitled to receive this form of funding. The students were to be selected on the basis of need, merit and potential by the local school or university officials. The NYA student aid programme was seen as an emergency measure to save the high schools and universities from further closures and retrenchments, it also kept the dream of a university education open to many American students. Moreover people like Harry Hopkins, the WPA Director (Hopkins 1935) and other progressives had other ambitions for the scheme, it was to be the first move to extend the notion of free schooling in the U.S. to the university sector. The work-in-return component was to be practical or socially useful, it was not to displace other educational workers. The end result can be best seen in the university aid schemes, a quick perusal through an American university library catalogue, subject bibliography or storeroom in a science laboratory will show a prolific output of research, teaching and library materials done by NYA students. The high school programme output was less durable but in 1939-40 year, for instance, 30 per cent of NYA students were assigned to teachers and librarians, another 30 per cent were involved in construction and renovation of school buildings, nearly 25 per cent were involved in building equipment or ground maintenance and the remainder were involved in clerical assistance. Of course many NYA students worked in a variety of different experiences under these different categories. In the late 1930s the NYA high school aid programme was rationalized to be more than a relief measure instead a socializing experience to understand the nature of work, undertake . manual or low skill white-collar labour and to make a better occupational choice. Thus as Joyal and Carr (1944) reported, the NYA became instrumental in establishing employment councils in high schools and junior colleges 'and the country was moving toward general adoption of work experience as an integral part of the high school education of many youth'.

The educational community welcomed the NYA student aid programmes, not only for providing economic relief and more years of schooling to the students, but because of the social experience and their increased employability (National Association of Secondary School Principals , 1940). Its major weakness was that the scheme was not extended to meet the student demand as over 30 per cent of students competed for NYA support. If there was one common criticism of the programme it was that not all NYA recipients were deserving cases: Yet local studies like that of Crow (1938) in Ohio high school in the years 1936-38 found that 51 per cent of recipients were from families on relief, 13 per cent of all NYA students were Negro, twice as large as the proportion of Negro population in the area. Moreover, the NYA aid forced students to attend school regularly, thereby imporving their educational prospects and range of educational opportunities.

The second type of activity was for those 18-25 years who had left school. This was a relief, work and training scheme not a programme funded by the NYA, but

a pattern of public works projects to help unemployed youth regain some self-respect. The NYA supported housing projects, public service training, job training and apprenticeship schemes, the last two becoming very important components after 1938, when NYA supported defence manpower training. Accompanying the projects were NYA support services, vocational and personal guidance activities, youth centres, residential training camps and NYA youth villages, the last prone to suspicions from some sections of harbouring young subversives, misfits, or worse still, supporters of Mrs. Roosevelt.

The most serious criticism of the NYA's work programmes were that the work could be exploitative, artificial in character and suspect in its objectives, i.e. a social discipline mechanism. These charges were prevalent in the education literature of the time and have been repeated by historians like Church (1976) nearly forty years later. They have some validity, the NYA itself (NYA Records) was critical of the nature of work experience programmes. Yet the test lies with the participants themselves. Crow (1938), and others, show that NYA people enjoyed the opportunity to study or work, and that the public work they carried out was personally satisfying and socially useful.

Australia

Australia's approach to the problems of youth unemployment must be seen in the context of the national and state governments, mainly Labor governments; acceptance of economic conservatism in the 1931 Premiers' Plan. It meant that budgets were balanced, by reducing government expenditures, by refraining from overseas borrowing and by reducing wages and pension benefits. These measures may have helped a quicker recovery but this is debatable and in any case it paid no attention to the plight of the unemployed. Australia's response to youth unemployment was not a national government response or as we shall in the case of Victoria not always seen as a responsibility of state governments (Giles 1936). The state and federal governments were relatively late on the scene and tended to associate the problem with charity cases. They also investigated, but never implemented, employment and educational policies which may have alleviated youth unemployment. These included a shorter working week, prevention of 'blind alley' jobs, strengthening apprenticeship conditions and raising the minimum school leaving age (the last was raised in NSW in 1941, mainly from trade union pressure). But what was done for unemployed youth in the interim? Victoria's experience in the 1930s appears to be typical of the Australian approach, except for the Lang governments short-lived attempts in NSW between 1930-32 (NSW Select Committee) Blackmore (1980) has studied the problem in Victoria and some of her findings are presented here.

Initially, the Victorian response to youth unemployment originated with non-governmental organizations and individuals imbued with middle class philanthropic motives or paternalistic attitudes inherited from 19th century concepts of charity. Consequently, the schemes were localised, voluntary, unco-ordinated and palliative. Programmes were adopted not out of an educational philosophy or co-ordinated social welfare policy, but as a utilitarian means to occupy the 'army of idle youth' in a

productive manner or to maintain a positive attitude to work; an unconscious form of social control. It was only the magnitude and persistence of youth unemployment which pressurized governments, state and federal, into action. And then it often only involved taking over existing voluntary programmes, e.g. vocational guidance, or extending adult programmes where appropriate, e.g. Forest Camps. Official reluctance to take on either administrative or financial responsibilities is exemplified in the failure to legally recognize unemployed youth in the Unemployment Relief act of 1932 which gave sustenance only to boys aged 15 to 19 of 6/-d. whilst all females were considered ineligible as they were part of the 'family unit' defined by the Harvester Judgement of 1907. Priority for relief was to adult males with dependants. Only in the State elections of 1935 did the United Australia Party and Labor Opposition propose schemes of Industrial Repatriation similar to those for returned soldiers and afforestation schemes, specifically for youth.

The Hogan Labor Government 1930-1932 appeared more sympathetic in allocating funds and personnel to youth programmes, whilst the Minister of Sustenance, W. Kent-Hughes (1932) emphasised a policy of 'individual initiative and self reliance.'

> I hold that the question is not primarily a matter of the government. It is a matter for the educationists, the headmasters and people in industry, whether they are machine minders or managers ... The government has its part to play. For instance, already we have been trying to help the various committees that have been formed ... but I do not think that the Government should step in and control movements started voluntarily. VPD p.3125

One such movement was the Vocational Guidance Association formed late 1927 by educationists, representatives of women's, parents, charity organizations, municipal councils and parliamentarians with the aim of developing vocational guidance in schools and instituting channels of communication between school and employers to facilitate job placement. The Hogan government adopted the Association's objectives and established a permanent Standing Committee including many of the above, in August 1929. This committee implemented a structural framework based on local advisory committees convened by the headmaster and representing the local school staff, council and parents, which in turn were represented at District Advisory Councils, based on Inspectorial Districts, with similar educational, community and business interests. At the head of the hierarchy was the Standing Committee and only paid official, G. R. Giles, the Vocational Guidance Officer, whose function was to collect, analyse and disseminate information via the press, radio, School Paper, Education Gazette and lectures.

As youth unemployment worsened, the role of each level changed direction and diversified with the establishment of 15 bureaux for guidance and placement to aid the 44 metropolitan, provincial and rural councils. Due to the extremes in needs with Shepparton's council reporting no unemployed youth, it was the high unemployment areas such as Geelong, Ballarat, Bendigo and Caulfield where innovations such as brochures and labour bureaux evolved, personnel at all levels were volunteers and all funding was locally financed through Rotary, fetes, stalls and parent organizations. Based on the assumption that correct vocational training and guidance increased employment

possibilities, the councils and committees established classes for unemployed youths with voluntary instructors teaching woodwork, mechanics, dressmaking, typing and other commercial subjects, aided by occupational talks and factory visits. Schools were affected by the movement in two aspects. Firstly, the formation of clubs emphasizing the productive use of leisure, self reliance, communal projects and with vocational leanings such as the Young Farmer's clubs and Pasture clubs reported frequestly in the Education Gazette. Secondly, with the introduction of Vocational Civics into the curriculum from Grades 6 to 8 where 'emphasis should be placed on the necessity of all labour and occupations to be studied from the view of service to the society'.

An indication of the success of the Vocational Guidance movement was that nearly 46% (15,119) of school leavers were surveyed as to their destinations in 1933. Placement success varied, with the Ballarat Council claiming a reduction of unemployment from 25% to 9% by 1933, whilst other council figures suggest that approximately one third of students contacted gained jobs. Classes for unemployed youth in Victoria were instigated and financed by numerous organizations, one example being the Unemployed Girls Relief Committee established by the Trades Hall and Ladies' Benevolent Societies after £5,000 was riased during Girl's Week in August 1930. The 1932 Annual Report estimated 12,000 unemployed girls in Melbourne alone, and that the Committee had only assisted 10,000 over two years with £8,750 raised in contributions and government grants of £1,375 . Classes for unemployed girls were held in Sewing and Cookery Centres in schools, local halls and council rooms free or charge. Generally the instructors were drawn from the ranks of the unemployed women, although classes were held at Domestic Arts schools had teachers provided by the Education Department with 233 girls attending in 1932 alone. The objectives included training girls in occupational skills for domestic service, to encourage them on the 'work for sustenance' principle for receiving 7/6d. per week, and to assist in the relief effort as the products were distributed to the unemployed families.

In a belated effort to reduce expenditure and co-ordinate relief the committee was put under administrative control of 'a conservative member of the Benevolent Society' and financial administration of the Sustenance Department. Consequently there was a reduction in sustenance available to single girls and many sewing centres closed. Other youth schemes faced similar financial stringencies - the Vocational Guidance card system was threatened for a saving of £28.10.0 per annum, whilst cookery classes financed by the Ladies Benevolent Societies were suspended due to depleted funds and as a condition of their operation was that it incurred no expense to the Education Department. Part-time classes with voluntary instructors in technical schools were established to compensate for the decreased instruction to apprentices after a successful appeal by certain apprenticeship trades and the Employers' Federation to allow rationing of apprentices, reduced rates and mutual cancellation of indentures (Apprenticeship Commission of Victoria : 1933). Classes were to 'take up the slack' of loss of instruction and substitute for experience at the work face at no extra expense to the Education Department.

Vocational education was seen to be the avenue of recovery by utilizing established youth organizations to fulfil a supplementary role rather than challenging the existing education system. A Boy's Employment Movement (BEM) was established by the Lord Mayor with Giles as Secretary in 1930 and including representatives from education, business, churches, councils and the YMCA to act primarily as a 'clearing house' by devising a register of unemployed boys and available jobs. Because many of the jobs involved did not offer wage rates the Trades Hall representative withdrew in 1932. Of the 15,345 boys enrolled in Melbourne between 1931-35, 11,886 were said to have gained employment. The BEM, which later encompassed a girl's branch, established classes in conjunction with the Education Department and the YMCA. The YMCA and YWCA were particularly suited to ascertaining and satisfying the needs of unemployed youth as they had naturally looked to them for assistance, as had employers for job applicants. The YMCA programme was four hours a day, four days a week with physical training, entertainment and technical and commercial courses. The period 1932-34 saw 1,342 boys gain jobs through the YMCA, or about 25% of its total enrolment. The YWCA had already formed a 'Helping Hand Bureau' which offered relief work for 400 girls in part-time clerical and sewing training, and followup assistance with job placement The Alma Road Hostel became a residential training school for homeless girls for 6-week training sessions to prepare and place girls in rural domestic service.

Despite the prolonged rural depression common to North America, Germany, England and Australia, was that of a theme of 'back to the land'. Victoria's example was that of Youth and Forest Conservation (estb. 1935) which envisaged manual outdoor work as a rejuvenation process away from the evils of idleness, mechanization and the city. Forest camps for unemployed had already been in progress for single and married adult males since 1930 as afforestation was seen as a productive use of sustenance funds. It was most applicable to youth as it would cultivate the work ethic, ideals of community service and develop a sense of individual responsibility and reliance as well as occupational skills. As was the pattern with youth schemes, the original concept derived from two individuals who donated land to the YMCA, while governmental approval and involvement in the form of a £4,000 grant in 1932 occurred only after pressure from youth organizations and the press. The objective was to train boys in forestry, farming and agricultural techniques for future rural employment. A local and central committee were established to select twenty metropolitan and ten local boys to built the first camp at Noojee. The project was supervised by the Forests Commission and a YMCA representative, while payment by the Sustenance Department of 20/-d. per week for 36 hours over 3 months, with amounts allocated for food, clothing, medical care, parents and savings. Instruction was practical, with no formal theory classes and instructors in a supervisory rather than teaching capacity making the learning process more incidental to the manual activities. The camps were run on quasi-military lines, with duties, punishments and curfew. The success of the Noojee camp was threatened by lack of government funding, until public support established grants to Forest Camps on a permanent footing from State and Federal sources. By 1935, the scheme operated in 14

country centres and assisted over 2,500 youths from 16 to 20. It lapsed in 1938 because of lack of Commonwealth government support. Similar rural schemes were run by the Presbyterian, Catholic and Methodist Churches. The Victorian Agricultural Society offered £5,000 to supply youths and single men as farm labourers if supplemented by 10/-d. per week from the Sustenance Department for the farmers to provide board. However a general reluctance of the boys to participate in the proposal and the trade union's criticism on the grounds of lack of specific training meant only £1,000 was utilized. A more organized attempt by the BEM and the Bendigo Vocational Committee was a training farm of nine acres at Flora Hill to be established to train boys over three months to go onto the land. After an initial grant of £2,000 the Employment Council considered all funding should be from local sources and denied the 6/-d. sustenance for youths. Consequently, the BEM paid each boy 4/-d. a week from its own funds. Actual numbers participating in the project were limited at a particular time to less than 15 and its anticipated self-sufficiency did not eventuate.

The Commonwealth government's support for youth unemployment schemes was minimal. It reluctantly provided funds to help support state programmes, e.g. forests or subsidize technical education courses for the unemployed. Most of this funding was available between 1935 and 1938. In July 1939, repeat 1939, the first interstate and Commonwealth ministers' conference in youth unemployment was held, it was to make no impression on the problem at all.

U.S. and Australian Approaches Compared : A Conclusion

In 1939 the president of the Young Nationalists Association (Clerke) concluded a survey of unemployment relief in Victoria with a statement pertinent to youth unemployment in all Australian states; 'the relief of poverty has not been attempted anything like a statesmanlike or sympathetic manner'. In 1939 NSW Apprenticeship Commissioner (McIntyre) concluded his study of North American youth employment schemes with a summary of the distinctive contributions of the US youth and other relief programmes:

1. The recognition by the Federal Government that unemployment is a National, as well as a State, responsibility.
2. The practical interest taken, and the financial assistance rendered to the States, by the Federal Government.
3. The magnitude and diversity of the problem and its cost to the people of the United States.
4. The distribution of relief work in the callings with the unemployed had usually followed instead of the provision of manual labour only, as is the custom in Australia.

Herein lay the differences between the two nations, differences as wide as the Pacific ocean itself. McIntyre's findings almost hide those other qualities which made the American programmes so successful. The federal government's acceptance of a primary responsibility to a national problem, the Roosevelt cabinet's impulse to emperimentation or deficit budgets were part of this story. Yet so too was the sense that those in power actually cared for unemployed youth, that they were not to be forgotten or classified 'TOO DIFFICULT', that youth still had a rightful place in American society. FDR's 1936 election phrase:

> **Better the occasional faults of a government that lives in a spirit of charity than the consistent omissions of a government frozen in the ice of its own indifference**

captured much of the New Deal's spirit, not least that of its youth policies. It is a message that still has appeal today across these distances of time and geography.

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SCHOOL LEAVERS IN RURAL AREAS

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The need for a study of what happens to school leavers in rural areas was recognised largely because of a concern about educational disadvantage in rural Australia.

In Tasmania this concern has increased as a result of research activities undertaken by the Research Branch of the Education Department.

The first of these was the Schooling and Work investigation of twenty-three year olds in Tasmanian urban and rural communities,[1] which was commissioned by the Commission of Inquiry into Poverty and was undertaken during 1974 and 1975. It demonstrated considerable rural disadvantage in both schooling and access to vocational opportunities. This was followed by the Huon Valley Study,[2] a descriptive investigation of education and the experiences of school leavers in the Huon Valley area of southern Tasmania in 1977. The study confirmed the educational disadvantage of the rural students and their limited access to employment opportunities. However, it could find no evidence of a lack of resource provision in the region with the exception of the absence of post Year 10 educational provision. As a result of this research activity the Tasmanian Education Department asked the Schools Commission to fund a national conference on rural education. The conference took place in Launceston in June 1977 and recommended an investigation of the outcomes and educational provisions in a cross section of country areas. As a result a special project grant was made by the Commission for such a study.

Although almost all states participated in the early discussions about the study, several did not eventually take part. In the end, Western Australia, Queensland and Tasmania agreed to undertake the investigation.

It was envisaged as being a study of school leavers in selected rural areas in the participating states. It was to be a longitudinal study in that school leavers were to be surveyed both in their final months at school and again on their entry into the work force. The study was planned to begin late in 1978 and to continue over a 12 month period leading to a final report in 1980. The actual investigation larely followed this outline as shown in detail in the next section.

Aim of the Study

The planning meeting which established the detail of the study agreed that its aim would be to address the following question: "What happens to school leavers in rural areas of Australia and how can their perceived options and actual opportunities be enhanced?"

Methodology

Each state selected three regions for study (two in Queensland) over a twelve month period. The study falls into three distinct parts:

1. A simple questionnaire was filled out by all grades 9, 10, 11 and 12 students in schools in the selected areas in November 1978. This provided basic student information and some measure of their aspirations for the future and perceptions of post-school life.

2. A second questionnaire was sent to actual school leavers in April/May 1979. This questionnaire was designed to provide information on their employment situation, the job search and their attitudes to work or unemployment.

3. The final stage was to interview sub-samples of those replying to the second questionnaire. These were conducted in August 1979. The various states selected samples in the following categories:-

   (a) the unemployed - all states;

   (b) females whose school potential appeared greater than their employment status - Tasmania;

   (c) the employed - Queensland and Western Australia;

   (d) those planning to leave school in 1978 who actually returned in 1979 - Queensland and Western Australia.

The response to the first questionnaire was virtually all the grades 9 to 12 students present at school when it was administered. For the second questionnaire an overall response rate of 80% was obtained.

Numbers Leaving School

Although slightly different methods were used by the three states in identifying school leavers, a fairly accurate picture of the numbers involved was obtained. Firstly, Table 1 shows how many of the November questionnaire respondents actually left the education system and entered the work force. For the purposes of the investigation, only those who had left full-time study were regarded as "school leavers".

Table 1. Numbers Leaving Education

	Tasmania		Queensland		Western Australia	
	No.	%	No.	%	No.	%
Returned to full-time study	629	61.8	746	71.6	1062	77.5
Entered work force	309	30.4	230	22.0	194	14.2
Unknown	80	7.8	67	6.4	115	8.4
TOTAL	1018	100.0	1043	100.0	1371	100.1

There are large significant differences between the three states. In particular, the number entering the work force in Tasmania is much larger than in the other two states. This is despite the absence of Year 11 and 12 students from the Tasmanian sample who make up a larger than average proportion of leavers in the other two states. The differences between the states are clearly shown in Table 2 which gives the proportions of Year 10 students continuing to Year 11 in the rural areas as compared to the whole states.

Table 2. Proportions of Year 10 students continuing to Year 11 in the rural areas studied and the whole states.

	Western Australia		Queensland		Tasmania	
	Rural Areas	Whole State	Rural Areas	Whole State	Rural Areas	Whole State
% retention	46	54	38	41	20	35

The Tasmanian rural areas have only about half (or less) of the Year 11 retention of the rural areas in Queensland and Western Australia, whereas the differences on a whole State basis are nowhere near so large. Clearly there is something unusual about the rural areas of Tasmania.

Data on the nature and provision of education in the Study Areas showed that the Tasmanians are as well provided for as the other states with the exception of a lack of Year 11 and 12 facilities. Tasmanian High Schools finish at Year 10 and students must move (or travel) to the city to complete their education. A low socio-economic status or poorer academic performance in the Tasmanian areas does not seem to be able to explain the low retention rates.

The larger proportion continuing to Year 11 in Western Australia is possibly due to the wider range of Year 11 courses, particularly alternative and terminal courses, available. In 1978, 20% of Western Australian Year 11 students were in such courses.

Reasons for Leaving School

Getting a job and earning money are the major reasons given by rural students for leaving school. A dislike of school and not feeling good enough are also important reasons, more so in Queensland but less significant in Tasmania. Financial difficulties are of some importance in Tasmania and are quite important to Queensland students. In all states, the largest group of students plans to get an apprenticeship or some other job training. In Tasmania and Queensland, the next largest group plans to get a job as soon as possible, while those planning to go on to University or College is second largest in Western Australia.

Preparation for Transition

Students had much less of an understanding of the job they expected than they had of their parents' jobs. For example, 61.4% of Queensland students had a good understanding, or better, of their fathers' jobs whereas only 33.7% had the same level of understanding of the job they expected for themselves. Similar results apply to the other two states. Given that quite a number of students would be expecting the same job as one of their parents, these figures indicate that parents and schools could do more to inform students about the jobs they were expecting to obtain.

Prior to leaving school, the school leavers had been asked who were their main sources of advice and who gave them the most useful advice. The results are shown in Table 3. Guidance and careers officers and teachers were much less consulted and valued compared

Table 3. Job Advice (Percentage)

	Western Australia (N = 256)		Queensland (N = 230)		Tasmania (N = 302)	
	Main Source	Best Advice	Main Source	Best Advice	Main Source	Best Advice
Parents/family	48.8	46.5	49.1	43.5	34.1	33.8
Friends	0.8	0.8	2.6	2.2	2.3	3.6
Teachers	3.5	4.7	2.6	6.1	11.6	9.6
Employers	5.1	6.6	7.0	9.1	4.3	5.0
Guidance/ Careers Offcrs	22.3	9.4	31.3	18.7	15.9	12.6
C.E.S.	5.1	3.1	0.9	1.7	18.2	16.2
Other	-	0.4	1.3	0.9	4.0	1.7
Self/no-one	5.9	17.6	3.9	12.6	3.1	9.6
No response	8.6	10.9	1.3	5.2	5.9	8.0

with parents and family. In all states careers teachers (guidance officers) are important as a source of advice, but were not highly valued by the leavers. Only in Tasmania was the Commonwealth Employment Service (C.E.S.) a significant source of advice and in that state it was more consulted and valued than were careers teachers. In Western Australia, the second largest group of leavers valued their own advice more than that of others.

All of the leavers who were interviewed were asked how the school had prepared them for work. Most of the leavers had had access to a careers teacher or guidance office. Some had been given advice about job applications and job interviews. The latter help was more highly regarded than visitors talking about specific careers. Several of the leavers interviewed mentioned work experience. It was almost always regarded as useful if only in the negative sense of eliminating a particular job from consideration. In some cases work experience led directly to employment although in one case this may have deterred an able student from continuing with her education.

Work experience seems to have been most widely available to Year 10 students in Tasmania. But even here a large number of leavers had missed out, for a variety of reasons. Given the value of work experience, it would seem that it should be incorporated into the program of all schools and should be as compulsory as any other school subject or activity.

The search for employment; where?

One of the major impressions emerging from the interviews was of young people who very much want to find work in their own areas.

For example, Mary had been planning to move to the city to do study for her Higher School Certificate (H.S.C.). However, her father died and she felt she should stay with her mother. She had lived in the city when younger but prefers the country. She now works in the bakehouse in a job which will terminate when she turns 18. Cathy was an excellent student at school and planned to be a teacher. However, she was sick of school and did not want to leave home as was necessary to do H.S.C. She found

work with the drycleaner in a town close to home and hence chose to work rather than to continue her education.

The search for employment; how?

The methods used by the leavers who were employed at the time of the May questionnaire are given in Table 4.

Table 4. How did you get your job? (Percentages)

	Western Australia (N = 148)	Queensland (N = 161)	Tasmania (N = 211)
Through the C.E.S	6.1	5.6	11.4
Other employment agency	2.0	0.6	1.4
Newspaper advertisement	16.9	17.4	15.2
Relatives of friends	27.0	34.2	28.0
Contacting employers	44.9	37.9	38.9
Through schools	4.1	2.5	4.7
No response	0.0	1.9	0.5

In all states the major ways of finding employment was by a direct approach to the employer. The second most popular method, used by more than a quarter of the employed in Tasmania and Western Australia and by over a third in Queensland, was by way of relatives and friends. Responding to a job advertisement in the paper was much less common while very few leavers used the Commonwealth Employment Services or other employment agencies.

The importance of contacts in obtaining jobs was confirmed by the interviews. For example, Angela, aged 17, had lived all her life in a Western Australian country town and obtained a clerical position in the town because her 'father heard there was a vacancy'. Alan, aged 17, obtained an apprenticeship with the local mining company. His father is a senior employee of the company.

Several girls interviewed said they found their jobs by knowing a girl who was leaving (or being put-off on turning eighteen) and applying to the owner before the job was actually vacant.

The interviews also revealed that where jobs actually are advertised there are dozens of young people applying for them. There were 180 applicants for 3 apprenticeships at a mill, for example.

Agencies such as C.E.S., which are not able to maintain a permanent presence in most country towns are not very useful to school leavers. The only group to make any significant use of the C.E.S. are those still unemployed!

Desire to work

There is no doubt from the interviews that the school leavers, particularly those unemployed, desperately want work. Amanda, for example, serves in a milk bar without pay. To external appearances she has a regular job. She does this because she is "terribly bored" from having nothing to do.

Apart from the few local jobs that become available, she has applied for over 30 jobs in the city. She would be happy to travel the 120 kilometres return each day as she could get a regular lift.

Trudy works three days a week in a fruit shop, earning only $8.00 a week more than she received from unemployment benefits. She prefers this to being bored at home while unemployed.

Beth was an average student, very personable and seemed eminently employable. She is "on call" at Coles, guaranteed work on Friday nights and Saturday mornings only. She has written to 29 hairdressers seeking employment next year.

Philip has managed to find a variety of casual labouring jobs in his area but neither an apprenticeship or a steady job. He does not like being unemployed and worked without pay for a local service station.

Tammy has only managed to obtain two casual jobs since leaving school. She was very well presented when interviewed. The two jobs she obtained were both manual jobs. One was bagging potatoes, the other splitting scallops. As dirty, smelly and low paid as these jobs were, they were preferable to the boredom of being unemployed. Without them she would have "gone up the wall". Tammy admits that while at school she thought it would be good to do nothing, but not anymore.

Toni wanted to get an animal nursing job on leaving school. She applied to all the local veterinarians with no success. She then asked at one of the larger veterinary practices if she could work without pay. Eventually they took her on in a permanent, paid position.

The clear evidence is that country school leavers badly want work and readily accept unpleasant, casual and even voluntary jobs where they can find them.

The numbers employed

The numbers of leavers in employment at the time of the second questionnaire (five to six months after leaving school) are given in Table 5.

Table 5. Numbers employed

	Western Australia		Queensland		Tasmania	
	No.	%	No.	%	No.	%
Employed	145	77.1	161	70.0	211	69.9
Unemployed	43	22.9	69	30.0	91	30.1
TOTAL	188	100.0	230	100.0	302	100.0

The Tasmanian and Queensland unemployment rates are remarkably similar despite the differences noted earlier. Although the Western Australian areas have a lower rate of unemployment, it is not significantly so.

Many of the employed leavers only have part-time or temporary jobs. The proportions of leavers with full-time permanent jobs are:

Western Australia - about 62%

Queensland - 55%

Tasmania - 51%

With only a little over half of the leavers obtaining substantive employment after almost six months in the work force, the employment situation for rural school leavers must be regarded as unsatisfactory.

The nature of employment

Table 6. Major employment categories of the leavers finding work (Percentages)

	Western Australia (N = 153)	Queensland (N = 161)	Tasmania (N = 211)
Lower professional	2.0	3.1	0.0
Clerical	17.6	22.4	16.9
Craftsmen and foremen	23.5	16.2	18.0
Shop assistants	19.6	14.9	17.5
Operators/ process workers	4.6	4.3	15.6
Personal and domestics	9.8	9.3	10.4
Farm workers	9.8	19.3	13.2
Labourers	8.5	5.6	7.6
Other	4.6	4.9	0.9

The most important areas of employment are as craftsmen and foremen (mainly those apprenticed), shop assistants, clerical workers and farm workers as the above table shows.

Being unemployed

Just over 28% of the 720 school leavers surveyed were unemployed six months after leaving school. Only a minority of leavers went straight into a job while the majority experienced several months of unemployment. For those unemployed, when surveyed, the length of unemployment is given in Table 7.

Table 7. How long have you been unemployed? (Percentages)

	Western Australia (N = 43)	Queensland (N = 69)	Tasmania (N = 91)
More than 13 weeks	55.8	49.3	51.6
8 - 13 weeks	14.0	26.1	13.2
4 - 8 weeks	14.0	7.2	5.5
Less than 4 weeks	14.0	14.5	27.5
No answer	2.3	2.9	2.2

About half of the unemployed have been out of work for more than three months.

There is good evidence that the unemployed are not shy of work. Many of the interview segments quoted above show just how hard the unemployed have searched for employment. In the Tasmanian sample only 22 leavers (7.3%) had not had some sort of job since they left school, and this group had averaged over 5 job applications each since they left. The responses of the unemployed when asked if they were presently looking for work were 86% to 93% "yes" and with 6% to 12% responding in the negative.

Any suggestion that the high rate of unemployment in these rural areas is a reflection of a "dole bludger" mentality is ruled out by the above data and by the small numbers actually on unemployment benefits.

Only a little over half the unemployed leavers were on unemployment benefits. Over a fifth of them had not even applied for benefits. The proportion on benefits was lowest in Queensland where nearly a third of the unemployed had not applied for benefits.

The section on the desire to work, provides some of the reasons why the leavers so badly want to work. Many of the unemployed mentioned the boredom of having nothing to do. The only exceptions were those living on farms. They seem to have more to do, usually helping with the farm work. Boredom seems to be especially bad for females in country towns in areas where there are few season jobs.

About half the unemployed showed limited optimism in that they expected to be unemployed for only a few months longer. A much smaller number (about 18%) were very pesimistic about their chances of ever getting a job. Females were less likely than males to be optomistic about finding work.

Female leavers

The previous sections have already indicated that female leavers face more problems than their male counterparts.

Their major problem is finding work. As shown in Table 8, the female unemployment rates are much higher than those of their male counterparts. In Western Australia male unemployment is only a sixth of the female rate.

Table 8. Do you have a job now? (Percentages)

	Western Australia		Queensland		Tasmania	
	Male (N=97)	Female (N=101)	Male (N=101)	Female (N=120)	Male (N=156)	Female (N=146)
Yes	93.8	62.4	77.3	63.3	78.9	60.3
No	6.2	37.6	22.7	36.7	21.1	39.7

In that State 86% of the unemployed are female but this is largely due to an exceptionally low rate of male unemployment. The female unemployment rate is similar in all three States, ranging from 37 - 40%.

But even of those in employment, the females are more likely to have part-time positions. The relatively depressed situation of female leavers in Western Australia is further documented with 23% of employed females in part-time employment. In all States, less than half the female leavers have found a full-time, permanent job, six months after leaving school. The interviews indicated that many of those employed in part-time and casual jobs are employed in seasonal rural industries and are almost certain to be unemployed when the seasons end.

Females have very different job expectations from males. While at school the females indicated that they would prefer jobs as lower professionals (e.g. nurses and teachers), personal and domestic workers (e.g. hairdressers) and as clerical workers. Males preferred jobs as craftsmen and as upper professionals (e.g. lawyers and doctors).

The males largely achieved craftsmen's jobs (apprenticeships) as preferred although significant numbers ended up employed in unskilled areas against their preferences.

However, the second largest group of females ended up as shop assistants whereas only a small percentage indicated a preference for this work originally. For example, the Tasmanian report shows that nearly 40% of the shop assistants had given a preference for professional jobs.

This illustrates one of the major difficulties for girls leaving school in the country. There are very few desirable jobs available to them. For clerical jobs they have to move to the city or large towns. The jobs associated with rural industries are often part-time or temporary. Shop jobs are among the few substantial positions available.

But even shop assistants jobs may not be satisfactory in the long term. The interviews indicated that female shop assistants are often put off when they turn eighteen because of the increase in their salaries. Furthermore, the interviews revealed several girls with good school results who had accepted shop assistants jobs rather than risk unemployment when they had completed their education. Those who would have left school early and taken such jobs in previous years presumably end up unemployed. This is confirmed for the Tasmanian sample in that of the 21 female leavers who had indicated a preference to be a shop assistant, 10 (48%) were unemployed in May.

It has been suggested that trade apprenticeships are one of the bright areas in youth employment and that this results from a distortion of the employment market, largely through government subsidies, in favour of apprentices.[2] If this is so, the government subsidies are totally sex biased with only three out of the total sample of 367 female leavers achieving a trade apprenticeship.

The dismal propsects for girls leaving school takes on tragic proportions when their isolation in the home is taken into consideration. One of the major activities of the unemployed leavers is working at home while quite a large group rarely spend time with their friends. However, when males and females are compared some important differences emerge. In particular it is the females who work around their homes on a daily basis and it is mainly the females who never spend time with their friends.

Given this situation it is no surprise that the females interviewed were so keen to find employment and so willing to accept unpleasant, casual and even voluntary jobs where they can find them.

Unemployed verus employed leavers

It is useful to compare the characteristics of the unemployed and employed leavers.

As Table 9 shows, there is a significantly lower rate of unemployment among those who definitely knew the job they wanted before they left school. This may be due in part to a number of students having a job arranged before they actually leave school. However, it is apparent that students who leave school without a clear idea of the job they want run a much greater risk of unemployment.

Table 9. How definite job plans are by employment status.

	Knew the Job I Want		Haven't Thought		Thought but No Idea		Trying to Decide		No Response	
	No.	%	No.	%	No.	%	No.	%	No.	%
Employed	342	76.9	10	52.6	53	58.9	106	67.9	6	60.0
Unemployed	103	23.1	9	47.4	37	41.1	50	32.1	4	40.0
Total	445	100.0	19	100.0	90	100.0	156	100.0	10	100.0

Students' own predictions of the likelihood of unemployment are born out to a significant degree. For example, leavers who predicted that it was very likely that they would be unemployed have nearly three times the unemployment rate of those who considered it to be unlikely.

Students were asked how they rated their chances of being successful in life. Very few students rated their chances of success to be less than "fair" but those who considered their chances of being successful in life were "fair" have nearly twice the unemployment rate of those who believed their chances were "good" or "better". Nearly half the leavers did not consider that they had a good (or better) chance of success in life and 37% of these remained unemployed six months after leaving school. Clearly rural students see getting a job as one of the major requirements to be successful in life. Even before they leave school many know that they are likely to be failures.

The analysis of this section defines two groups. The first group has a much lower chance of unemployment. By the time they leave school they have a clear idea of the job they want and may even have a job arranged.

The second group is the "at risk" group for potential unemployment. They are more likely to expect jobs in traditionally "female" areas. They are less definite about their job plans and know it is likely that they will end up unemployed. They see themselves as only having a "fair" chance of success in the future.

This evidence suggests that, even before they leave school, the life chances of these young people have been seriously curtailed.

Conclusion

The employment situation facing rural school leavers is grim. Six months after leaving school 28% were unemployed and only a little over half the leavers had full-time permanent jobs.

The situation of female leavers is particularly bad. They make up two thirds of the unemployed. When unemployed they are largely isolated at home and their major activity is doing housework. They are desperate for employment and readily accept unpleasant, casual and even voluntary jobs when they can find them.

Tasmanian students in country areas have very low retention rates to Year 11 compared to their mainland counterparts. This is not a result of their low socio-economic status or poor academic results. It seems to reflect the absence of post-year 10 education in rural Tasmania.

Even before they left school about a third of the leavers realised that they were likely to end up unemployed and saw themselves as only having a "fair" chance of success in the future. This group had a significantly higher rate of unemployment after leaving and hence their fears were largely realised. Even before they leave school the life chances of these young people have been seriously curtailed.

It would seem that little in the way of "bandaid" treatment will help rural school leavers. One of the few proposals that would make a real difference is the implementation of a Youth Guarantee. That is a scheme guaranteeing an acceptable post-school role (e.g. work, further study, work experience, community service or some combination of these) for all young people.

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WORK EXPERIENCE, CORRESPONDENCE AND HEGEMONY

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Introduction

The research outlined in this paper is concerned with examining the implications of introducing a work-experience programme into the curriculum. This innovation and similar others have been introduced at this point of time when the economy is in a state of recession and when "the education system is not...producing people" (that an employer) "can comfortably and satisfactorily use" (Willis-Cooke, 1978).

Work-experience is seen as making education relevant and allowing students to perceive the real world. However it would seem that the reality of the workplace is often revealed as a partial reality. Students are given a taste of the types of jobs they are interested in. They are made aware of the correct work habits and affective behaviour required by employers. But do they see the "contested terrain" of the work-place (Edwards, 1979; Montgomery, 1979)? The question is whether they see a particular form of organiz-ation which is taken for granted as being normal and universal but with little idea of the conflict and dynamic interaction between labour and capital which has resulted in those work patterns or any likely alternatives (Apple,1980).

As a consequence it can be argued that these innovations may, if not carefully implemented, present a one dimensional perspective of the workplace to students. This poses a dilemma to those implementing such a scheme. While work-experience may provide great benefits in a experiential sense, too often it may be used as a vehicle to socialize students to the demands of industry for a docile, obedient workforce.

This point is well caught by Cole (1979) who argues that educationalists should be aware of these demands and be prepared to ameliorate them. In this way teachers can lessen the existing pattern whereby "the vocational function of education lies mainly in value training and not in the area of cognitive knowledge" (cited in Cole, 1979:72).

The Problem

The foreshadowed problem of the research concerns the hegemonization of students to the requirements of the workplace. Key elements in the situation of this process are the increasing disjunction between school and work, the inflation of credentials and the deskilling of work within an increasingly segmented labour market.

The current imbalance between the 'products' of schools and the 'demands' of work has raised calls for a closer 'fit' between the two. Consequently some educationalists (Levy, 1980) have argued for a closer correspondence between the curriculum and work. For at present she claims the school curriculum "seems to have little discernible relationship to either the work performed by most members of society or the actual organization and operations of society". Such an argument not only reifies the world of work but also assumes the submission of schooling to the world of work, indeed an uncritical entry to the workplace where certain social relationships are seen as normal, natural and universal. In this way the hegemony of indus-trial relations may be reinforced with students experiencing a "lived system of meanings and values" which may not serve their best interests (Williams, 1977:110).

Theoretical Framework

The theoretical argument revolves around three main facets of current sociological discourse. These are

firstly the relationship between school and the workplace; secondly the concept of hegemony; and thirdly the influence of technological innovations on skill requirements.

School and the Workplace

The argument here is concerned with the recent work of writers such as Bowles and Gintis (1977), Carnoy and Levin (1976), Bourdieu and Passeron (1977), Bernstein (1977), Collins (1979) and Apple (1979). As Jerome Karabel has recently written (1979:85) there can be no denying that the work of the last several years has contributed substantially to our understanding of two of the most fundamental of social processes (i) the dynamics of class reproduction and change, and (ii) the process of cultural transmission". Within this context these writers "whatever their failings, have decisively raised the level of theoretical discourse about the place of education institutions and processes in the larger society". This has been achieved by situating education back into its socio-economic context which permits the crucial connection of linking the macro-forces in the larger society to the micro-interactions within the school.

The correspondence theory puts forward the proposition that schools play an important part in inculcating the population with the values and dispositions necessary for the continual reproduction of the dominant relations of production. Basically, the values, norms, structures, processes and dynamics of schooling mirror those found in the bureaucratically and hierachically patterned economic organisations (see La Brecque, 1978).

The main advocates of the theory Carnoy and Levin (1976) and Bowles and Gintis (1977) argue that central to it is the fact that the school must be situated back into its socio-economic context before any satisfactory analysis can take place. Therefore:

> The educational system helps integrate youth into the economic system, we believe, through a structural correspondence between its social relations and those of production. The structure of social relations in education not only inures the student to the discipline of the workplace, but develops the type of personal demeanor, modes of self presentation, self image and social class identifications which are the crucial ingredients of job adequacy.
>
> (1977:131).

But for Levin (1978:34) the idea of correspondence contains more than just the simple notion of matching the structural and organizational characteristics of schools and work enterprises. It also embraces the content of work and schooling processes such that "the combination of form and content of schooling processes tend to support the existing relations of work". Children are reconciled to the ultimate occupational positions that they will occupy and are prepared to perform the appropriate duties.

But such an approach has been viewed as an oversocialized, mechanistic perspective of the relations between school and work (Apple, 1979, 1980; Giroux, 1980). There is a neglect of the passive withdrawal or even overt rebelliousness that students frequently indulge in. As Bernstein argues (1977:187):

> We agree that schools may well legitimize values and attitudes relevant to the mode of production, but this does not mean that these are so internalized as to constitute specific personalities. Consider various forms of industrial action over the last hundred years. The school in this respect is highly inefficient in creating a docile differentiated and subservient work force.

While the correspondence theory is important as a significant basis of research methodology (La Brecque, 1978; Hogan, 1979; Kamens, 1977; Collins, 1976). Willis' (1977) ethnographic study shows that the reality of schools is much more dynamic and complex than the theory would indicate. As Willis argues:

> Social agents are not passive bearers of ideology, but active

appropriators who reproduce existing structures only through struggle, contestation and partial penetration of these structure

(1977:175).

Essential to a fuller understanding of schools and work is the factor of cultural capital. As Apple says (1979:35) if "you want to understand how cultural and economic-political forms work in tandem then think of both as aspects of capital".

Bourdieu in showing how schools and pedagogic theories and practices function as reproductive mechanisms concentrating on the aspect of cultural capital. The central tenet of Bourdieu's thesis (Bourdieu and Passeron, 1977) is that schools do not transmit culture but that they play an essential part in reproducing the dominant culture. Inherent in this reproduction is the reproduction of power relations between classes. The dominant cultural capital consists of those attitudes, tastes, linguistic and artistic proclivities that have been deemed appropriate and legitimate. As a consequence this cultural capital is taken as 'normal', 'natural' and 'inevitable'.

As Aronowitz has argued work attitudes, such as punctuality which are now viewed as normal only became important with the development of industrial capitalism. So that:

> internal time consciousness, became a function of the industrial system, and punctuality in appearing for work was a requirement that, in highly integrated and rationalized manufacturing processes, became even more fundamental than the possession of manual skills.
>
> (1973:70).

The concept of cultural capital has influenced a number of writers including Berstein who is concerned with linking work to linguistic codes (1977); Young (1971) who looks at the stratification of knowledge; Apple who sees the accumulation of cultural capital in the form of high status technical knowledge (1979) and Collins who argues the importance of cultural capital from the viewpoint of cultural markets and credentialism (1977, 1979).

Hegemony

This dominant cultural capital or cultural hegemony consists of control that is basically not coercive, there are no physical constraints, any constraints are moral and/or intellectual. For Gramsci, hegemonic direction is by moral and intellectual persuasion: "rule by intellectual and moral hegemony is the form of power which gives stability and founds power upon wide ranging consent and acquiesence". This means that "every relationship of hegemony is necessarily an educational relationship" (Gramsci, in Entwistle, 1978:24).

But while dominant, cultural hegemony still leaves room for resistance and modification. Although the prevailing cultural hegemony is "systematically preferred...at the same time alternative and oppositional values are brought into the cultural system and domesticated into hegemonic forms at times by the routine workings of the market" (Gitlin, 1979:254). There is no monolithic domination of a particular ideology. Hegemony is a particular historical situation with inherent variations in the strength of the control. For as Connell points out:

> control is never total...Hegemonic situations range from a strongly established pattern of direct controls with only marginal dissidence, through situations where a working class has formed as an economic and social category but its mobilization is being aborted, to situations where mobilization has occurred though only within decided limits.
>
> (1977:207).

By this means social control is obtained through general consent. Hegemony at a particular time, defines the limits of debate in society by putting up certain concepts and relationships as normal, natural and universal. But in addition it relates to those normal patterns and practices that saturate the daily life of people. As Raymond Williams (1977) points out:

> It is, that is to say, in the strongest sense a "culture", but a culture which has also to be seen as the lived dominance and subordination of particular classes.
>
> (1977:110).

But while the theories of reproduction may give an impression of schools mirroring the socio-economic system we must be aware of the contradictions inherent within that reproduction. For as Apple (1980)argues:

> by focussing on schools only as reproductive institutions, we may miss the dynamic interplay between education and an economy and be in danger of reducing the complexity of this relationship to a bare parody of what actually exists at the level of practice.
>
> (1980:49).

In this way we can, for example, see the contradiction between the need for schools to be seen as legitimating meritocratic mobility through credentials and the oversupply of educated graduates.

The Workplace

If one accepts the basic proposition that to understand schools and schooling they must be situated back into their socio-economic context then the changes taking place in the world of work is of vital importance.

Important to this discussion is the work of Braverman (1974); Noble (1979); Edwards (1979) and Montgomery (1979). For Braverman, the rationalization of work through technology is related to the increasing control over the activities for the benefit of capital. So that "work shop division of labour is imposed by planning and control" (1974:73). While Noble (1979) concludes that modern technology has become "merely a means to corporate ends" (1979:321), Edwards (1979) is concerned with the social relations of production rather than the technical aspects which concerned Braverman. Here he outlines three forms of control,simple, technical and bureaucratic. All of these foster resistance which present an ongoing process of development in the social relationships between employer and employee (See also Montgomery,1979)

This quest for control has given rise to distinct segmented labour markets. These are controlled by political labour over productive labour (Collins, 1979). The literature on labour market segmentation (Priore, 1975; Edwards, Reich and Gordon, 1973, 1975 and Carnoy, 1977, 1978) argues that the labour market is divided into primary and secondary segments. Each segment is rewarded differentially not so much because of "marginal productivity" differences but more for political and social reasons. Thus as technicians and white collar workers' jobs become more routinized and deskilled their job security and political power will decline as they move more from primary to secondary segments (Braverman, 1974:Chpt.4; Carnoy, 1977a).

Methodology

In view of the above arguments it seems important to gain some understanding of the perceptions and experiences of students regarding the school/work relationships. In particular students who are currently experiencing the transition from school to work may be able to provide insights into the school/work relationship which will allow schools to evaluate and reassess the programmes they currently offer. Through such a study schools may be able to take better account of the impact of work on students. The

current study therefore uses the ethnographic technique of participant-observer. This is because such research needs to examine closely and with understanding the subtle perceptions and interpretations of school and work by both students and employers. In this way the processes and interactions might be viewed rather than bare statistical data where meanings often have to be invented. As Mehan and Wood argue:

> In the sociologist's tables of data and even more in the theories made up about those tables one cannot find a sense of the person's daily activity that produced the various phenomena those tables talk about. (1975:48).

Ethnographic research in this area was considered the most suitable for examining the relationship between school and work. Wilson (1977) points out that standard research measurements are weak in assessing such a subtle area as vocational orientation. Also Le Compte (1978) found ethnographic techniques most suitable for examining the correspondence between school and work. While Vallence (1980) suggests that such qualitative methodology might provide the "logical complement to the problems of the hidden curriculum". By linking the ethnography closely to current arguments on the relationship between school and work it is hoped to follow Smith's (1980) critique that "educational research ought properly to relate abstract knowledge to the realities of the world". (1980:390).

Because ethnography is based on the underlying criteria that what people say and do is consciously and unconsciously shaped by the social situation, being on site is the "sine qua non of ethnographic research" (Smith, 1979:341). Schatzman and Strauss note that by being a full participant the "inside" researcher is "right where things happen and where members talk about what has happened" (1973:62). In this way ethnographic methodology differs from traditional research. In organisations people often "mask" or build up a facade against what is actually happening. This proposition is supported by Smith (1979) who points out that people have been "known" to "stonewall", to lie, to develop fictional reports, to hide organizational realities" (1979:341). This is much more difficult to do when the researcher is actively engaged in the interaction between the subjects in the field.

As the research is concerned with a particular aspect of the curriculum, such an ethnographic study is termed by Schwartz and Jacobs (1979) hunt-and-peck ethnography. In this method the research makes a set of integrated observations on a given topic and places them within an analytic framework. In the present research the framework would include observations on the students, the school, the workplace and the political economy. Through this method Schwartz and Jacobs describe the researcher as a social map-maker whose framework is validated through the examples of social life which they serve to locate and integrate. From the observations of these relationships should come a wealth of primary data; actual quotes from informants, related in their own words, from comments and written documents (Wolcott, 1975:124).

If in the present research, the data provided by the taped interviews, the office records, the career teachers questionnaires and reports and the observed behaviour of the student converges then a high validity may be claimed (Magoon, 1977). Similarly if the research findings are compatible with other research of similar events then a high reliability may be claimed (Becker, 1970).

As Smith (1980) rightly argues "the collection of descriptions...seems to me to be an ultimate waste of time, unless someone asks the questions "So what? What does it all mean?" (1980:390). Any ethnographic study must be tied into a theoretical discourse. The social relationships examined must be placed into the wider socio-economic background. Within one's particular ethnographic framework the researcher should enlarge the "interlocking domains into a more comprehensive theory" (Smith, 1977:207). In this

regard it is appropriate to expect the ethnographer to look for connections between little problems and big ones and for him to organize his account so as to show some comparability between a problem immediately at hand and the recurring themes among problems shared by humans in all times and places (Wolcott,1975:125).

Data Source

A Year 11 class of 88 students in a south-eastern Melbourne high school is being studied. These students were taped in pre-work experience discussions with their careers teacher and the researcher as participant. The researcher observed and participated in the placement of the students into the workplace. The students were observed at work and the programme and the work of the students was discussed with a number of employers. A series of post-work experience discussions are in the process of being taped.

Some Observations of a Work Experience Programme

Work experience at the school takes place over the last week in June and the first week in July. This particular time is chosen because it is in the middle of the long second term when often excursions are taken in other subjects and so there is already some upset in the order of the school. Also from the placement point of view this time is suitable for a number of employers as it is the end of the financial year. It is the time of stocktaking, budgeting and balancing when a few extra helpers can lessen the strain on the staff. But others would prefer it to be away from this time as they find it difficult to look after a couple of bewildered students and worry about the end of the financial year at the same time.

The programme is essentially organized for all of year 11 in the school. This is the year of major student exit from the school. Up to this level the retention rates in the school are quite high. But after this year there may be a drop of up to fifty percent in the students going on to H.S.C. So this was the time when it was felt that contact with the workplace, especially in those areas of student interest, was most desirable. In addition some year 10 students also go out at spasmodic times. These are students with a special interest in a job or who are having difficulties in the school with either their studies or behaviour. These latter students are felt to most likely leave the school after Year 10.

Preparations for Going

The preparation of the students and the organization starts early in Term 1. Films on the changes in work and its organization especially the influence of the 'chip' and new technology were discussed with the students. The students generally seemed well aware of what was going on as most engaged in some sort of work during the year. This involved working at one of the local super-markets or other shops after school or at weekend or during the holiday periods. This first hand experience was often supplemented by the information coming from friends, brothers or sisters. For example Rowena added the observation that:

> my sister works in an office that introduced the new computers. The work has become easier so they don't need as many (workers).

In particular small groups of three or four students discussed their aspirations, expectations, perceptions of work, technology and unemployment during Term 1. This was done within the general backdrop on the relevance of the work-experience. The experiential benefits of the programme were pointed out by the students. As Sally said:

> It will give me a chance to see what the job involves before you go into your job. You might find work experience and get a shock at what it involves.

You'll get prepared for it.

Mary agreed adding:

> Yes, it will show before you leave school. You'll know just what to expect and then if you don't like it its not too late to change your mind and choose something else.

But in addition they realize that the programme functions to socialize students to the demands of industry and the workplace. So for Barry work-experience:

> shows you've got to work hard, you can't bludge in a job; for eight hours a day; its not really easy; you've got to work and concentrate at it for eight hours. You can't have a break like at school. You're at your job for the whole eight hours.

In this respect school was easier than the workplace. The routine of the school was well known; rules could be bent or got around. If you were found out the punishments weren't all too severe. But in the workplace with unemployment high among school leavers it was a different matter as Peter observed:

> at school you can get away with certain things but at a job you could get the sack. You don't get expelled because you're late for class.

But Eric pointed out that while the school lacked the finality which was often clearly manifest in the workplace, it did help in gearing students to a routine and channelling them into a work pattern instead of allowing them to do what they want. With set times and timetables:

> you have to stick to the hours. The same as with work you have certain things which you should do, not just what you want to do.

If many jobs consist of doing things that the students did not want to do then the link between work experience and entrinsic rewards might be made. The students are paid by legislation, a minimum of three dollars a day. In this way they are offered some compensation if the job is boring and alienating. As Mr. Hunt the Minister for Education in Victoria stated "the main purpose of the payment was to motivate students" (1980).

The correspondence is made closer by the payment of entrinsic rewards to compensate for the realities of the work situation with its often boring and exploitive aspects. In this way work experience is a vivid teacher of what may lie in store for the student (Cole 1975). This had been made clear to Greg who had been on work experience the previous year and who wanted to something in the medical field but had failed year 11.

> All I did was wind armatures all day. You had to accept it. All you do all week was just wind armatures and you do get bored after about 4 hours of just winding armatures. It's pretty bad.

In this context of being in a job which was boring, monotonous and routinized Mac was philosophical. This was a fairly normal situation which in the present economic circumstances you have to adjust to.

> I suppose you have to have the attitude well you've got to live somehow, but the money is coming in and you have to be happy with what you've got.

The students were well aware of the economic situation in that most felt that they would be unemployed for a period of time especially after leaving school or tertiary studies. This attitude was often a source of tension between students and parents who very often held the belief that anyone who really wanted a job could get one. Parents who had entered the workforce in the 1950's and 1960's when continous economic growth had allowed some real mobility or an illusion of mobility with minimal unemployment, found it difficult to comprehend the changing technological and economic circumstances.

The students saw two main factors leading to unemployment. Firstly oversupply of those wanting to enter the professions especially in primary teaching a traditional avenue for senior girls. But some still held to their aspirations because:

> I suppose things might change when we get out in 4 or five years but at the moment I might be unemployed.

The other main factor in unemployment was seen as the new technology. This was seen as a factor in drying up the source of jobs in the tertiary field, especially banks and offices and manufacturing. Barry observed that:

> A lot of people are losing their jobs now because it costs too much money to employ all the people and they're replacing them with computers, even the car manufacturers.

The boys and girls had a fairly realistic perspective of both the workplace and the economic circumstances in which they would enter it. However there was little indication that these had dimmed their aspirations. While they might not expect to immediately attain what they were aspiring to, there was always hope that things might change. This is supported by Levin (1978) who quotes research which found that high school graduates were not found to be more "realistic" about careers as reflected by their career aspirations, even after being out of high school for two years and a majority having participated in the work place (1978:96). In Australia Cole (1979) also quotes research indicating that work-experience helps to eliminate from aspirations jobs students do not want (1979:59).

Some Observations of Employers' Perspectives

Employers generally welcomed the inclusion of a work-experience programme into a schools' curriculum. They felt that there should be a closer fit and co-ordination between the school and local industry. As Powell the Director of the Victorian Chamber of Manufacturers has said:

> we as employers have been quite ready to castigate what we see as a lax or poor education system. It is time...for us to put our money where our mouths are. Not in creating flexible school programmes at the grass roots level but in assisting in their fine tuning and practical application. Coordination is essential at this stage.
>
> (1980:5).

In addition employers are concerned by students who "do not share or understand their attitudes on value systems" (Hart, 1979; Williams, 1979). Consequently one of the benefits for employers is that potential employees can be trained in the appropriate work habits. As the period on the job is only two weeks it was found that:

> work-experience was too short to be concerned with skills so we're mainly concerned with approaches to work and work habits.
>
> (Personnel Manager - large firm).

A personnel officer in another large firm endorsed this approach. He felt that the school was sheltered without any real pressures as in industry. Work-experience gave students some idea of the demands and pressures of the workplace. It not only showed how the workplace operated but it enabled students to "get into the right habits needed in the workplace". This was important to the students as he felt it would increase their prospects of employment. Except for specific trades, when hiring employees, the company felt that it was:

> most important that they have a suitable attitude toward the job and work in general;

rather than specific work skills.

In fact employers saw little use for the skills learnt at school even the commercial skills such as shorthand and accounting were seen as of little initial value. They preferred to choose who they wanted and then train them in their own system.

Some firms were careful to show students a range of jobs. Not only were the most interesting sampled but also "the menial and/or boring" side of the jobs, because if the student did join the firm then it would be most likely at the lower rungs of the hierarchy. In this context most firms did view work-experience as an avenue of recruitment. This entailed for both student and employer an element of "try before you buy".

Wills-Cooke (1978) has outlined some of the benefits that are inherent in work-experience in recruiting. Firstly when a prospective employee has spent time in a company then there is an unrivalled opportunity to see him as he really is in the work situation. Secondly the permanent employment of a co-operative student is a substantial saving in straight out recruiting costs. A mistake in employing an unsuitable staff member may cost a substantial amount. Thirdly a student who has settled in and is co-operative accepts permanent employment with sure knowledge of what he is getting into and is much more likely to remain and become a stable long term employee.

In this way work-experience can save employers time, paperwork and money in their recruitment of staff.

These sentiments on the relationship between work experience and recruitment were endorsed in discussions with employers. They felt that it was a benefit when recruiting if you know about an applicants attitude, work habits, personality and relationship with fellow workers. As one personnel officer said:

> The company would give preference to someone who had done work-experience. They would know how the company operates; they would know the routine; they would be more aware of the demands of the company. If satisfactory then they would get the job.

Similarly a small firm only offered its apprenticeships to students who had had contact with it through work-experience. The owner preferred to hire employees who were reliable and known to him. Other firms, also stated that when vacancies arose they initially contacted former suitable work-experience students. An example was related by one manager who stated:

> We keep work-experience students in mind when vacancies arise. We had a vacancy recently in the photography section and offered it to a girl who had been there on work-experience. It's better to get a person you know, with the right approach than someone you don't. After two weeks you can tell if a student has the right attitude.

Sometimes the offer of a job is made immediately at the end of the work-experience programme. Jim had been doing his two weeks at a small firm. He came back to school excited that he had been offered a position straight away with the company. His chance had come he told us because:

> the apprentice was cheeky and came too late so they got rid of him. They gave me the chance to take his place.

For Jim the lesson of work-experience had become reality. It had been illustrated to him in the clearest possible way how jobs were won and lost in the workplace.

Conclusion

In times of economic crisis innovations such as work-experience are often held up as a panacea to society's problems. However the call for a closer fit between school and work will not solve unemployment or underemployment. Nor does it seem likely that it will solve the conflicts through unfulfilled aspirations. As Poole (1980:19) points out a "danger of the 1980's lies in educational research failing to compensate for societal structural factors by addressing problems that cannot be soleved by research.."

Yet while there are no advantages in solving the larger socio-economic problems there are advantages

for both students and employers in such a scheme. For students there is the taste of the workplace and possible potential jobs. In particular they are made aware of the appropriate work habits and attitudes which are important to gaining a job. In addition, they come to realize that not all jobs are glamorous with the freedom of the top executives. The jobs at the bottom of the hierarchy can be boring, monotonous and routinzed in which academic skills are seen to be of lesser importance than reliability, neatness and punctuality. In this way there is a danger that students may be hegemonized to a particular perspective which presents a particular perspective of industrial social relations as normal and natural.

For employers the programme offers an opportunity to acquaint students with the appropriate work habits and attitudes suitable for future employees. In this way there are advantages not only in precluding future employees who may come into conflict with management but also the costs and paperwork involved in recruitment. Work experience then provides useful contacts for employers to fill vacancies when they arrive or to replace unsuitable employees. Through this work-experience is in danger of becoming another prerequisite for potential employees which as Cole (1979:79) argues:

> would not expand job opportunities but merely redistribute the available jobs whilst at the same time adding to the ever increasing spiral of credentialism which inadvertently could increase the inequality already evident in the incidence of youth unemployment.

In attempt to ameliorate some of these problems the experiential side of work-experience should be emphasized. The students should be prepared about work rather than for work. To develop this perspective a course on the sociology of work has been proposed in this school to run in conjunction with work-experince and extending into Year 12. It is hoped that this would include alternative organizations of work, industrial democracy, worker participation; the organization and functioning of trade unions; the historical development and social effects of technology and the social and economic implications of unemployment and underemployment. Through such courses in the curriculum a more balanced picture of work might be possible which would allay the criticism and the indications that many of the school to work innovations in the curriculum are hegemonic that is that they present a particular view of industry as normal, natural and inevitable.

For work is not simply a hegemonic relationship, the social relationships involved in industry are contested relationships where differing interests are negotiated. The parameters of behaviour, performance, reward, control and production are therefore social constructions - rather than unalterable social realities. Work-experience and school/work transition programs need to take account of the factor of contestation in the social construction of the world of work.

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COST-EFFECTIVENESS OF SECONDARY COOPERATIVE VOCATIONAL EDUCATION

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Introduction

Cooperative vocational education (CVE), as a concept, has been utilized in the United States since its beginning when Herman Schneider, Dean of the College of Engineering at the University of Cincinnati, developed in 1906 this concept to insure that his graduating engineers would have practical application, as well as theory, before full-time employment commenced. The growth of CVE, at both the secondary and post-secondary level was slow, but steady, until the 1960's when special federal categorical funding caused major expansion, particularly at the secondary level. Priority for this funding was in communities where there was high youth unemployment and/or extreme school dropout rates. Recent legislation at the secondary level has eliminated categorical funding yet the CVE program continues to grow. The definition of CVE has remained the same since 1906, simply translated defines CVE as a program or method which utilizes the work environment as a part of the educational process. Both the work environment activities and the school activities are planned so both contribute toward the student's employability.

There are two basic types of CVE. The first having some prior inschool vocational preparation before the industrial environment. This is called capstone. An example of this is the secondary machine shop student who works in industry during the senior year; this activity takes place in that part of the school day normally spent in the shop program. The second approach is diversified occupations (DO), where there is no prior inschool preparation before work release. The lack of inschool preparation may be due, in part, to the inaccessibility of courses or in areas where there is too little demand. In the DO approach, all vocational training takes place on the job. Both approaches utilize the job site to develop or expand vocational education. In the capstone, the learning is on new equipment or processes that are not available in the school. Diversified occupations basic occupational training for job entry level is provided. Both programs coordinate the inschool educational activity with on-the-job learning so both increase the student's employment opportunities.

In Pennsylvania, the secondary cooperative vocational education concept has grown from a few dozen programs in 1970 to an excess of 600 at the end of the 1980 school year. This rapid expansion has at the present time over 22,000 students enrolled in this concept. These students will be attending the school facility for only one-half of the school day and working under a supervised training arrangement for the remaining portion of the school day. This has had a major effect on the number of teachers needed to teach both general education and inschool vocational subjects, as well as those needed to coordinate this program. Research conducted by local school districts suggest that the job placement record following graduation is 50 percent better in areas of training following a cooperative education experience than those vocational students not involved in cooperative education. Yet there are vocational educators who see the cooperative education concept as a second best approach and claim that better and more thorough training takes place in the school setting.

Statement of the Problem

A major concern of this study was to determine what effect the present programs have on youth unemployment and school dropout rates. Another major concern was the cost and effectiveness of the cooperative vocational education concept to employers, schools, students, and their parents. This study was also concerned about the placement records, employment status, salary, and program satisfaction of students one year following graduation. In general, this study attempted to determine the overall effect of utilizing

industry as a part of, or all, vocational training of secondary students.

Related Literature

Cost benefit studies attempt to determine if the benefits derived from the program outweigh the cost. The answer to this task is not an easy one. Lewis et al. (1976) in attempting to answer the question, "Does CVE benefits justify the costs?" stated:

> It could be stated at the very beginning that the answer to this question cannot be a simple "Yes" or "No." The results that were obtained cover a variety of outcomes that could be influenced by work experience and they are not all clearly positive or negative. (p. 1)

On of the reasons is that the dollar and cents are not the only cost or benefits of such a program. Drawbaugh (1977) stated:

> It is not technology or capital but an adequate supply of competent employees that is the decisive factor in production and marketing in the established corporation. (p. 29)

As to the dollar and cents cost of a program, Moore (1976), in a study of 10,000 students in Southern California's cooperative program, found that the average cost per student was $50 or less, which he concluded was a very minimal cost for the benefits received. Lewis et al. in their national study concluded that it cost an additional $125 per year, per student, for the cooperative vocational education experience, thus making this a rather expensive concept. Why the extra costs? Lewis et al. (1976) stated:

> The answer appears to lie in the extra cost for school supervision and job placement--primarily the cost of the coordinator's salary and travel--and the fact that the other major inschool cost--teacher salaries--is the same whether the student is on the job or in the shop. (p. 4)

Evans (1971) looked at costs a little differently. He found that cooperative work experience education had a higher rate of return for the expenditures. Capital costs for the school were lower, and the students were receiving a wage for their training, thus the student costs were lower. He stated:

> Highly specialized equipment which may quickly become obsolete cannot be afforded in a typical school vocational program, but will be provided on the job because of production demands. (p. 197)

Lewis et al. (1976) suggested that additional costs of students was that of time. They found that students had less time to be involved in extracurricular activities, if involved in a cooperative vocational education experience.

As to benefits derived from the program it was the same as costs. Benefits cannot always be judged in terms of dollars and cents alone. Middleton (1975) in evaluating cocperative vocational education programs in Vancouver British Columbia Secondary School Systems found that not only did the programs create job skills within the students but it helped students become self-directed, confident, and mature adults. Frankel (1973) found that the cooperative vocational education program appeared to be generating most enthusiasm among students, employers, and school officials because they were meeting the expressed needs and objectives of all three programs. Lewis et al. (1976), in comparing cooperative vocational education students with non-cooperative education students stated:

> . . .that students in school-supervised jobs, either cooperative or work study, (but especially cooperative) have benefited more in terms of career development and planning, satisfaction in school, and dropout prevention, than other students.

He further stated:

> Participation in cooperative programs does seem to enhance the student's "employability" and to ease the transition from school to work; work study programs do seem to deter potential dropouts. (p. 10)

In terms of dollars, Slick-Welch (1974), in a study of vocational students two years after graduation found that:

> The graduates of the Capstone program reported weekly earnings of $139, with the diversified occupations program graduates earning $136, and the total inschool program graduates, $117. (p. 49)

Thus the cooperative vocational education students tend to earn more money than their counterparts who do not have cooperative education experience. The Slick-Welch study also followed up the employers of the graduates to determine their feelings toward the training their students had received. They stated:

> The findings of this study indicate that the graduates of cooperative vocational programs have a better preparation for the world of work than those having only the inschool vocational training. This is verified by the opinion of the graduates, the opinion of the employers, and the salary paid to respective program graduates. (p. 40)

Welch (1977), in review of the related literature on the cost-effectiveness study summarized his findings:

> It is obvious that there are many benefits to students other than monetary benefits--such as a wise career choice, job satisfaction, school satisfaction, as well as a positive adjustment to the world of work. Employers benefit heavily in the area of recruiting future employees as well as becoming an integral part of the school system and receiving some direct returns for their tax dollar.

The literature suggests that there is wide variation in terms of costs and benefits in a cooperative vocational education program. Many of the programs that looked at the dollar costs of a cooperative vocational education program did not examine what the alternatives were to cooperative education and what the costs of these alternatives were. Generally the literature was supportive to the cooperative vocational education approach.

Conceptual Framework and Methodology

To get a representative sample it was decided at the outset that the sample would come from students of total programs rather than a stratified random sample of the total state. In order to determine the make-up of the sample, the programs in the 65 various counties were examined. Six counties were identified as a sample group. They were determined by size, population density, school enrollment, and economic and employment status. They ranged from small rural counties to large counties with major metropolitan centers, from depressed areas to affluent communities. It was determined at the beginning of the project that the total cooperative vocational education student body in each of these counties would be surveyed, both the capstone and DO students. It was also determined that an equal number of non-cooperative vocational education participating students would be involved as a control group. Approximately one-half would come from the vocational programs and the remaining from the academic programs. The rationale being that the capstone students were from vocational programs where diversified occupation students were originally in academic programs prior to their involvement in cooperative vocational education. The survey was developed to be administered to the students while still in school, thus insuring the largest possible return. Each student was asked to take a questionnaire home to their parents, have their parents complete the questionnaire and mail it to the University. Employers participating in the cooperative vocational education program were surveyed. An equal number of employers not presently involved in cooperative vocational education programs were surveyed to determine their attitudes toward the program and their perceived benefits. The non-participating group was selected from the telephone directories in each of the communities surveyed. The school guidance counselors, both vocational and academic, were surveyed to determine their attitude toward the cooperative vocational education program and the student involvement. Interviewed were the six chief school administrators and the directors of six state administered employment offices to determine their attitudes and perceptions of the cooperative vocational education program.

The second year of the study, the graduates of three county-wide cooperative programs previously surveyed were mailed questionnaires to determine employment status and satisfaction with their educational endeavors. The present year's student population were also surveyed to determine their attitudes and perceptions of cooperative vocational education and to determine some of the functional aspects of the vocational education program. Five employers from each community were selected at random and personally interviewed to determine functional procedures of cooperative vocational education as well as their attitudes and perceptions of the program that was in existence that year.

A total of 2,297 students were surveyed. Of these, 1,262 were cooperative education students and 1,035 were non-cooperative education students. A total of 579 students, 530 vocational students, and 505 academic students provided returns of 100 percent respectively. The sample of employers numbered 830 with a return of 464, or 56 percent; non-participating employers numbered 1,350, with a return of 230, or 17 percent. The rationale behind the larger number of non-participating employers being surveyed was the expectation that since they were not involved in any educational program, there would be little or no incentive to return the questionnaire. A larger number of questionnaires were sent to these individuals, in the hope of obtaining a near equal number of returns to provide for comparison purposes. Unfortunately, the percentage of return was so small that the information provided is suspect.

A total of 150 guidance counselors were surveyed in the six county-wide school systems. Of these, 89 useful questionnaires were returned, or a 59 percent response. Each student surveyed was requested to deliver a questionnaire to their parents; this provided 2,297 possible responses. We are not certain how many of these questionnaires did in fact arrive at home, but 1,427 were returned, or 62 percent.

The following are the return rates of questionnaires received. Capstone 302; Diversified Occupations 385; Vocational 356; and Academic 384. The second year of the survey, 387 graduates were mailed questionnaires; 193 were returned, for a 50 percent return rate. A total of 335 students participated in the survey that year; the return rate was 100 percent because the material was collected at the school.

Findings and Discussion

The findings and the discussion of the findings will be presented by the group surveyed and interviewed, they are: employer, guidance counselor, parent, student, state employment office personnel, and chief school administrator and graduates.

Employers

Two groups of employers were surveyed; those presently participating in cooperative vocational education programs and those not participating. The response rate of the non-participating employers was too small to make any conclusions.

It was determined that 34.4 percent of participating employers would not have hired a part- or full-time person if a co-op student had not been available. This means that approximately one-third of all training stations were created especially for co-op students. The majority of employers surveyed felt it less costly to train a co-op student than a part-time employee (see Table 1). These students were absent from work the same amount of time, and in many cases less, than regular part-time employees. The time required to train a productive worker was less than regular part-time employees.

The employers felt progress made after initial training was the same or more rapid than that of regular part-time employees (see Table 2). This suggests a positive cost benefit ratio to employers in this cooperative vocational education endeavor. Of the employers responding, 72 percent indicated that students

were adequately prepared when entering the cooperative vocational education program; 28 percent felt they were not. Employers stated the students' best area of preparation was in attitude toward work; in fact 66 percent felt they were well prepared in this area. A total of 56 percent felt they possessed adequate skill competencies, while only 33 percent felt the students were emotionally ready for work. Many employers had both capstone and DO students which made it impossible to compare the preparedness of each individual program.

TABLE 1

TRAINING COST TO EMPLOYERS CO-OP STUDENTS VERSUS REGULAR PART-TIME EMPLOYEES

	More		Less		Same		Undecided	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Training Cost	41	10.	201	50	161	40		
Absent from Work	22	4.8	200	43.6	237	51.6		
Training Time	49	10.8	158	35	190	42	55	12.2

Guidance Counselors

Guidance counselors were selected because of their involvement in assisting students with course selection, working with students who have had discipline problems and are aware of the potential dropout situation within their school system. Seventy of the 89 guidance counselors responded or 78.7 percent felt that cooperative vocational education had a positive effect on the dropout problem within their school, 58.5 percent stated that the co-op program had diminished behavioral problems within its school, 35.9 percent felt that it made no difference and 5.6 percent indicated that the behavioral problems increased with the cooperative vocational education program. Ninety-three percent of the co-op guidance counselors felt that the cooperative program had some effect upon improving student attendance in school (see Table 3).

TABLE 2

EMPLOYER RATING OF CO-OP STUDENT PROGRESS ON-THE-JOB AFTER INITIAL TRAINING VERSUS REGULAR PART-TIME EMPLOYEES

	Number	Percent
More Rapid Progress	167	37.7
Same Progress	255	57.6
Slower Progress	21	4.7

TABLE 3

GUIDANCE COUNSELORS OPINION ON THE EFFECT OF COOPERATIVE EDUCATION ON STUDENT SCHOOL ATTENDANCE

	Frequency	Percentage
High Effect	30	33.7
Moderate Effect	53	59.6
No Effect	5	5.6
Negative Effect	1	1.1

In terms of the guidance counselor's opinion of the student's overall attitude toward school, 85.4 percent felt the change was positive, 4.5 percent stated a negative change, while 10.1 percent felt there was no change at all. The guidance counselors responded that the cooperative education program had a positive effect upon the student's overall grades (see Table 4).

Two-thirds of the guidance counselors responding stated that they would recommend cooperative vocational education for students with behavioral problems, one-third felt theywould only place highly motivated students in this program. In terms of how effective they felt their cooperative vocational education program was coordinated in their respective schools, 13 percent felt that it was not effectively coordinated. In computing the correlation between the effectiveness of the coordination of the program and the other variables to which the guidance counselors responded, it was found that poorly coordinated programs had less positive effect on the dropout problems, school attendance, and school grades. In other words, if the program was properly coordinated the results could have been far more positive. In terms of what effect

cooperative vocational education had upon the dropout problem from the guidance point of view, it seemed to have a major effect upon lessening the dropout problem, with many added effects such as improving attitudes, attendance, and grades for these students.

In an open-ended question to the guidance counselors asking their opinion of the cost versus effectiveness of the cooperative vocational education program, the response was generally positive in the cost benefit ratio. Several responded that cooperative education should be included or expanded at any cost because they had seen it as a salvation for many students.

Parents

Approximately 30 percent of the response was from fathers, with 65 percent from mothers, and the remaining from guardians or others. Parents were asked to respond to a five-point Likert scale on how they liked their child's program (see Table 5). Generally parents were satisfied with their child's program but academic parents were least satisfied of the total group. To determine the educational related costs to parents, they were asked to give a comparison between the present years school cost and the previous years cost (see Table 6). It was found that the DO students, in three categories, cost their parents less the present year than they had the year before.

TABLE 4

GUIDANCE COUNSELORS OPINIONS ON THE EFFECT OF COOPERATIVE EDUCATION ON STUDENT'S OVERALL GRADES

	Frequency	Percentage
Highly Effected	14	16
Moderately Effected	58	65
No Effect	16	18
Negative Effect	1	1

TABLE 5

PARENTS' PERSPECTIVES OF THE CHILD'S EDUCATIONAL PROGRAM

Co-op Capstone	Co-op Do	Vocation	Academic
4.5%	4.3%	4.2%	3.8%

5 = Like very much; 1 = Dislike very much

Traditionally, in the United States, the senior year is the student's most expensive. Coupled with the 15 percent inflation rate that year, the findings show that cooperative education students tend to spend money they are earning to support themselves, particularly the diversified occupation student.

Ninety-three percent of the capstone parents felt that the cooperative education program had increased their child's interest in learning. Seventy-six percent of the DO parents and 86 percent of the vocational education parents responded this way. From the cost-effectiveness point of view, the CVE parents thought that both the students and the school were doing better and their financial expenditures were less than the alternative programs.

Students

Questionnaires were distributed to the students, through the coordinators and guidance programs in each respective school. The student response was 100 percent because they were completed and returned the same day. In terms of student responses, vocational programs appeared to be more male dominated, where the academic program was female dominated, by far more male vocational students go into capstone co-op than female. The cooperative vocational education students tended to have a more positive attitude toward school and their respective program than did the other sub-groups. The cooperative education student indicated they had less absenteeism than did the other groups. In terms of employment (see Table 7), most cooperative vocational education students were holding a job. Those not holding jobs were in a state of transition; less than 50 percent of the vocational or academic students held jobs. The wages paid and

the hours worked per week favored cooperative education students. The average capstone student is earning $104.60 per week, the average DO student $84.05 per week, the average vocational student who is working earned $64.02 per week and the average working academic student $39.60. As to cost-effectiveness, students being in the cooperative vocational education program tends to improve the grade-point average, they have less absenteeism, plus having less school related problem and at the same time make excellent wages, it is little wonder that they are more enthusiastic toward, and more satisfied with, their cooperative vocational education program thanare the students in the alternative approaches.

TABLE 6

HOW MUCH HAVE PARENTS' EXPENSES CHANGED FOR THEIR CHILD COMPARED TO LAST SCHOOL YEAR?

5 = increased ext. 4 = inc. 3 = even 2 = decreased 1 = decreased ext.

	CAP.	DO	VOC.	ACA.
Food	3.5	3.3	3.7	3.9
Clothing	3.3	2.9	3.7	3.9
Transportation	3.6	3.3	3.6	3.9
Educational Supplies	3.0	2.7	3.2	3.4
Insurance	3.4	3.2	3.4	3.6
Miscellaneous	3.2	2.9	3.5	3.8

TABLE 7

STUDENT EMPLOYMENT

	CAP.	DO	VOC.	ACA.
Percent Presently Holding A Job	99.4	98 7	44.4	49.4
Wages Per Hour	3.31	3.16	3.02	2.49
Wages Per Week	31.6	26.6	21.2	15.9

Employment Office Interview

State employment offices, within a six-county labor market area, were contacted for their opinions on the cooperative vocational education program. This was conducted through an interview process with the employment office manager and his staff. Questioning concerned three general topics: 1) type of cooperation between the area vocational-technical school and/or the educational program and the employment office, 2) effect cooperative vocational education has on the youth unemployment in their labor market area, and 3) overall feelings and concerns regarding the cooperative vocational education program in their specific labor market area.

Generally, the opinion expressed on both the cooperative education program and the school was positive. The aspect concerning the effect cooperative vocational education had on youth unemployment; this was more difficult to obtain. The employment office does not categorize people seeking employment as having cooperative education backgrounds. Although, in the discussion with their staff, it was determined that very few cooperative graduates, if any, came into their office looking for employment. All six labor market areas felt that the cooperative vocational education program had a positive effect on youth unemployment in their area. There were several major areas of concern which appeared to be fairly consistent throughout the six labor market areas. First, they did not see that the more cooperative vocational education coordinator was utilizing the information that was available from the employment office to the fullest extent, and secondly, maybe there were some negative effects on full-time workers and, particularly, heads of households obtaining positions.

Chief School Administrator

The chief school administrator for the intermediate unit, area vocational-technical school or school district, that is responsible for the county-wide cooperative vocational education program was interviewed to provide input concerning the following areas: 1) overall effectiveness of cooperative education programs, 2) benefits concerning the dropout rate, absenteeism, vandalism, etc. in the school, 3) cost to the cooperative vocational education programs, including staff and travel, 4) speculation concerning the future

effect of decreasing student enrollments and increasing number of cooperative vocational education students would have on staffing patterns with the school district.

There was a consistent feeling that the cooperative vocational education programs was an effective approach and should be utilized more fully in the future. The administrators also felt it had a positive effect on lessening the school dropout rate, absenteeism within the school, vandalism, and discipline problems.

The cost of the cooperative vocational education program varied from profit-making to $468 per student program. Two school administrators felt that either there was no cost or they made a profit on the cooperative vocational education program. This was due to the added financial reimbursement of vocational funds. All administrators stated that the cooperative vocational education program was relatively inexpensive and added that it had a very positive cost benefit ratio.

This study attempted to determine when the cooperative vocational education program was added, was it an alternative, and if so, the least expensive alternative. Administrators from two counties felt it would be impossible to accommodate the students if the cooperative vocational education program was eliminated. If they had to, they would eliminate the pre-vocational or vocational programs for underclassmen. One superintendent suggested that he would need to have a quarter of a million dollars in capital expenses to add three additional vocational programs and employ one additional teacher. All administrators suggested that it would be a burden to eliminate cooperative education and it probably would have a negative effect on dropout rates, vandalism, school discipline problems, etc. All the county administrators felt that the diversified program students could be accommodated within the home school, but they could not offer vocational alternatives for these students.

The reaction was mixed with regard to immediate or long-term effects of the increased utilization of the cooperative vocational education programs. Four of the six county superintendents felt there would be no immediate (in the next year or two) effect upon the number of faculty. Five of the six county administrators felt that over the long-term (three to five years), there would be an effect on the number of teachers needed in the elective subject area if the cooperative programs were to be expanded and the declining enrollment continued. One county superintendent suggested that teacher furloughing was very possible and, in fact, probably the next year.

Second Year Follow-up

The intent of the second year follow-up was to collect data on the graduates, survey current students and employers for information concerning procedural problems in cooperative vocational education as well as perceptions of the program. Guidance counselors were also followed up. Due to the funding constraints, only three of the six counties were chosen, the three counties with the highest school dropout and youth unemployment.

Graduates

Ten months following graduation, 67 percent of the responding graduates had full-time employment, 10 percent part-time employment, four percent were in college, three percent were not seeking employment, 1.6 percent in the military and two percent in other types of training, and nine percent seeking employment. This nine percent compares with the three county average of 22 percent youth unemployment. Of those working, 77 percent reported working in the area for which they had trained, 33 percent were not, 47 percent were working for the same employer for which they trained, 66 percent were satisfied with their present employment position, where 26 percent were unsatisfied with their employment situation. Ninety-two percent stated

If they had to repeat high school again they would again opt for the cooperative vocational education program, 94 percent stated the co-op program helped them to get along with co-workers, customers, and other people in which they came in daily contact. Twenty-five percent of the respondents felt they were making more than average wages, 58 percent felt they were making average, while 11 percent felt they were making somewhat below average. The female's responding to this question tended to lower the average. In terms of time it took from graduation to the first job, 64 percent of those employed acquired their first job within the first two weeks following graduation, five percent have never been employed. Seventy-three percent of the graduates expressed satisfaction with their vocational program, 49 percent stated that the money they had received as part of their training aided them in remaining in school and able to graduate. Ten percent of the population stated that if the co-op program was not available they would have dropped out of school.

Current Student Response (1980, Second Year Follow-up)

Eighty percent of the students felt that the co-op theory class which dealt with the transition between school and work was valuable to them. Eighty percent felt that the vocational training they received in school was current and up to date compared to the activities they were required to do on the job, 20 percent felt that it was not, 11 percent stated they would drop out of school if it were not for cooperative vocational education.

Follow-up Guidance Counselor Response (1980)

Guidance counselors were administered the same questionnaire they had been a year earlier. Their responses were consistent with the previous year, extremely positive toward cooperative vocational education. One additional question was added, "Had your co-op program improved over the past year?" Sixty percent stated that it had.

Second Year Employer (Interview)

Each employer intended to take additional co-op students in the future, all felt that their regular employees supported the co-op students and worked with them without difficulty. All felt that the co-op program was beneficial to them as well as to the students. These employers stated they had interviewed perspective co-op students before hiring, that was the accepted method in each case. Seventy-seven percent of the employers stated they had a training plan which they were following, 23 percent said they were not aware of one. In terms of how often the coordinator visited them at their place of employment, 84 percent stated they felt it was ample and would like it to remain the same. All the employers rated the co-op program as excellent or good.

Implications to Education

There seems little doubt that the cooperative vocational education approach has had a positive effect on lessening the school dropout rate in the secondary programs in the counties surveyed. The general consensus appears to be that youth unemployment was positively effected by the CVE approach. Cost benefit ratio favored the cooperative vocational education program from student, employer, parent, and school point of view. Students improved their grades, attendance, and had less school related problems while at the same time earning money with some of it going toward their educational expenses. Parents approved of their child's program and it was less costly. The employers not only developed trained employees but in less time and at a lower cost. School officials found this method to be the least expensive of any alternatives that had been considered and, through time, will lower the costs due to the lessening of needed elective area teachers. The results strongly suggest the benefits of cooperative vocational education

outweigh their cost. The results of this study tend to strongly suggest that CVE approach assists students not only in the transition from school to work but perhaps more fundamentally the transition from adolescence to young adulthood.

These studies point out that the cooperative vocational education coordinator is a job developer with 34 percent of all training situations created especially for the co-op student. The school takes on a new and much needed role in the community. It raises a broader question that perhaps the school might be in a better position to expand the world of work potential of youth, even more, and at a reduced cost to employers, students and parents. The placement records of the graduates in the three counties surveyed, 47 percent were with the employer for which they trained, 77 percent in the area for which they trained, is impressive. This compares with the placement rate of all vocational students in Pennsylvania being 25 percent, this is over a 200 percent increase. For those students who did not stay with the trade in which they trained, they have, while still in school, developed a work reputation which will assist them in gaining other employment.

In the diversified occupation approach, the vocational curriculum offering is limited only to the types of employment opportunities available in the community. These training opportunities tend to lead to employment, thus lessening the possibility of training people for non-existent jobs. Though the program has gone through rapid expansion, this program is still will under-utilized. More fully utilized, it could have a marked effect upon youth unemployment.

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POST-SCHOOL EDUCATION AND EMPLOYMENT IN WESTERN AUSTRALIA DURING THE NINETEEN THIRTIES AND THE NINETEEN SEVENTIES: A COMPARATIVE STUDY

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This paper attempts to compare the impact on policy towards post-school education* in Western Australia, of the Great Depression of the nineteen thirties and the recession of the nineteen seventies. The task is fraught with difficulties, since economic conditions in the earlier decade were very different from those in the 'seventies, whilst educational facilities also were much less developed and the population more dispersed in rural areas. Furthermore, unemployment levels in the 'thirties were much worse than in the later decade, and social services much less extensive. Even so, there are remarkable similarities between the two decades - and especially with respect to widespread community dissatisfaction and disillusionment with institutionalised education - that beg for a comparative analysis. This paper draws attention to the similarities and seeks out lessons that might be drawn from experience in the 'thirties. One would expect that experience in Western Australia differs little in essentials from that in other Australian states.

Harsh assessments of the performance of educationists during the 'thirties owed something to the inflated expectations about education generated during the pre-depression decade. These had been fanned by notable achievements in primary and post-primary education, the opening of several district high schools in major country towns, the launching of the Muresk Agricultural College in 1926, and legislation in 1925 that introduced compulsory day-release training for apprentices. The University of Western Australia, which in 1927 received news of the Hackett Bequest, considerably expanded its influence by way of its public examinations, degree studies, adult and external teaching, and a vigorous promotion of professional education among the local business and professional communites. Over the 'twenties, a series of registration acts, cadetship schemes, and other professional ventures heightened aspirations among foresters, agricultural scientists, engineers, architects, surveyors, lawyers, dentists, nurses, pharmacists, public servants, school teachers, accountants, businessmen and journalists.(1) At the post-primary level, teacher unionists worked closely with a sympathetic Labor Government to evolve ambitious programmes encompassing an extended period of compulsory education. This emphasised continuation classes, vocational guidance and new forms of general education for "the masses", much along the lines of British thinking at the time. The rhetoric favoured pre-vocational education, and indeed, technical education itself became the subject of a Government inquiry by James Nangle, in 1928.(2) Yet it was the general curriculum that triumphed, not least because of teachers' dependence upon the University's public examinations and their own academic predilections. Another factor proved to be the consolidation of bureaucratic structures within the State Education Department under the terms of the 1928 Education Act, which, with Labor acquiescence, simultaneously conferred significant powers on the State School Teachers' Union. The Collier Labor administration (1924-1930) reached beyond its resources to cope with the burgeoning expectations, though the State's Centenary celebrations in 1929 were an occasion for precarious optimism and hyperbole.

Similar expectations accompanied developments in the 'sixties, when tertiary enrolments in Western Australia rose from around 8,780 in 1965 to nearly 26,500 in 1975 and the rise in technical education was from 55,400 to 108,713 over the same period. It had taken sixty years to amass a total of 8000 tertiary

*"Post school" is used to describe levels of education beyond the stage of legal compulsion (15 years) and outside the conventional upper secondary school system.

students; but only a decade to treble that number. The dramatic impact of Commonwealth Government financial intervention is so well documented that it needs no repetition here. New institutions included the Western Australian Institute of Technology, four new teachers' colleges (renamed colleges of advanced education), and the Murdoch University. The University of Western Australia, meanwhile, grew into a major metropolitan university. Following expansion in technical education, but more particularly the extension of compulsory general secondary education in 1962, the State Education Department became immensely influential, while at the same time the Teachers' Union also consolidated its strength. In tertiary education, autonomy was conferred upon the colleges of advanced education, and in 1971 the Government established the Western Australian Tertiary Education Commission as a statutory authority. By the time the Whitlam Government initiatives were launched in 1973, progressive education theories and practices had gained widespread acceptance, while the community in general believed the economic doctrines underpinning public investment in education at all levels. The decade was littered with reports of Commonwealth and State Government[3] committees that promoted these doctrines.

Western Australian reports of the 'thirties and the 'seventies carried a very different message. Inquiries by Albert Asher Wolff into Youth Employment and the Apprenticeship System (1938)[4] and the Administration of the University of Western Australia (1942)[5] were products of community disillusionment with the drift of educational activity over the previous decade. So too in the 'seventies, the Partridge Report (1976)[6] closed off the expansion of tertiary education, and other inquiries led to revisions of the organisation and administration of apprenticeship and technical education, and a reassessment of curriculum and examinations in secondary education. The Commonwealth Government's Report on Education, Training and Employment, in 1979,[7] reflected the similar drift of national priorities, as did youth and adult employment initiatives and trade and manpower training policies.

Higher education became a casualty in the two decades and for not dissimilar reasons. The economic situation, disasterous in the 'thirties and tight in the 'seventies, abruptly terminated the expansion of earlier years. This was accompanied, moreover, by an avalanche of popular resentment about expenditure on university education at a time when economy was demanded and the life-style of university and college student 'elites' could be damagingly contrasted with the plight of unemployed youth.[8] Charges about academic maladministration in the 'thirties mounted to the point where the then Willcock Labor Government appointed Wolff to investigate the University of Western Australia. His recommendations led to the University shedding its sub-graduate teaching and many peripheral activities, and concentrating on higher level disciplinary, professional and research work. Entrance requirements were lifted to reduce failure rates; part-time and external tuition came under fire; and even the desirability of introducing tuition fees was canvassed. Rather similar situations applied in the 'seventies.

As a corollary to the redirection of academic energy at the University of Western Australia which followed the 1942 Wolff Report, both technical and teacher education experienced renewed support. In technical education, the 1938 Wolff Commission opened the way for new developments in trade training, even though industry and the unions were initially uncooperative. The technical educationists, who early in the Depression argued for investment in training as a means of preparing youth for jobs as the economy recovered,[9] were partly vindicated, when apprenticeship training reforms, although very late to materialise, owed much to Wolff's recommendations in 1938. Then too, the University Royal Commission of 1942 paved the way for the establishment of tertiary level associateship courses at the Perth Technical College as well as a reconstituted teacher training course at the Claremont Teachers' College.[10] Wolff had been very

critical of University involvement with both the Technical College and the Teachers' College during the depression years. In the event, by 1945 the basis of a "tripartite" system of tertiary education encompassing the University, the Perth Technical College and the Claremont Teachers' College had been established.

Academic and professional autonomy in education were prime targets for Government and community disillussionment with educationists. On autonomy, it might appear odd to compare situations before World War II and those applying during the 'sixties and 'seventies. But during the 'twenties the University of Western Australia, although denied access to student fees, had shaken free to some extent from the stranglehold of almost complete dependence on State Government grants. Over the same decade, the Government had delegated substantial powers to outstanding "professional" directors in key government departments, while Andrew's dominance of the Education Department was of long standing. Also, The Nangle Report on Technical Education in 1928 advocated strengthening the professional stature of the Perth Technical College. Efforts had been made, further, to establish advisory and coordinating agencies in technical and teacher education that promised to enhance professional interests at the possible expense of Government control. Most of the State's professional bodies too (including the State School Teachers' Union) were winning major battles to strengthen their position through registration acts, membership examinations and professional courses.

By the time of the two Wolff Reports there was no mistaking State Government determination to cut professional educators down to size. The Willcock Labor Government late in the 'thirties sought (unsuccessfully) to downgrade the position of Director of Education[11] and it opposed any suggestion that advisory bodies in technical education should gain significant powers. The most serious casualty of this resolve was Superintendent of Technical Education J.F. Lynch's proposals in 1938 and 1939 to establish a Technical Education Advisory Council comprising representations from education, industry, unions and the community.[12] He contended that such a body was necessary to rebuild bridges between technical education and the community, which had all but collapsed during the Depression when educationists were widely pilloried as ivory-tower pedants lacking an understanding of the real world. Nothing came of the proposal, although the outbreak of World War II allowed the matter to die a natural death. Considerable opposition, or at least half-hearted support, also surrounded unsuccessful attempts to create an apprenticeship executive on which a technical educationist would have some say about training policy and demands.[13] More serious at the time were concerted Government moves to amend the University Act so as to guarantee Government nominees a majority of votes on the University Senate. These followed populist attacks on the administrative competence of academics that Wolff's assessments in the 1942 Royal Commission to some extent lent support. In fact, amendments to the University Act passed in 1944 did not go this far, owing to vigorous lobbying to preserve "academic freedom".[14] Yet the amendments cut solidly into the non-Government membership, and the intention was quite clear.

Ironically, the new membership greatly benefited the University, since it involved significant Government and community interests and personalities with the welfare of the institution. This prevented the institution from becoming too isolated from the community at large. In the Education Department, however, bureaucratic isolation increased as Government controls were drawn tighter. This particularly hampered communication between the technical schools and their constituencies. A good case can be made, indeed, for the view that the bureaucratisation of state education under Andrews, necessary in his early years, had by 1930 become something of a liability since it eroded easy contacts between industry, business

and the schools. Public service regidities that received the full weight of Teachers' Union support only compounded the pattern of bureaucratic insulation described. In the event, the Royal Commission inquiry of 1938 opened something of a floodgate through which poured complaints about academics and school teachers. Critics in the community, lacking personal involvement in educational policy and action, were free to heap calumny on the schools and their teachers.

Commonwealth and State spending on post-school education and the conferring of statutory autonomy on colleges of advanced education, as happened in the 'sixties, certainly had no parallel in the 'twenties. Ironically, autonomy was seen as a means of breaking down public service rigidities and promoting responsiveness to community needs. Critics in the 'seventies argued that academics had taken advantage of this freedom to further their own interests. To some extent, the main Commonwealth coordinating and advisory authorities in the 'sixties favoured institutional interests, and similar claims could be made about the early activities of the Western Australian Tertiary Education Commission and the State's Teacher Education Authority (established in 1971 and 1973 respectively).(15) Since 1974, however, tighter advisory and coordinating machinery that is intended to reflect community and government priorities - economy, accountability and rationalisation - has been introduced. The Western Australian Post Secondary Education Commission is a case in point, whilst at the Commonwealth level the creation of the Tertiary Education Commission has a similar purpose. Other examples at State level have involved decisions to keep technical and further education under the State Education Department, albeit with an Advisory Council, rather than (as had been advocated) permit it to form into a new and relatively autonomous sector of post-school education.(16)

As regards financial priorities, Government policies in the 'seventies, as in the 'thirties, favoured technical rather than higher education. During the 'seventies, Commonwealth and State action brought to an end the period of expansion in tertiary education. In the universities too, policy trends emphasised tougher admission requirements and a return to more traditional academic activities. The colleges of advanced education, though they experienced similar constraints, were protected somewhat against the community backlash by virtue of their practical and professional orientation. Not so, however, in connection with their involvement in teacher education, which universally suffered from community resentments about teachers, training and recruitment standards, and progressive curriculum theories and practices. Simultaneously, Governments "rediscovered" technical and further education. Its new standing, confirmed by the absorption of technical education into a much expanded "system" of post-secondary as distinct from "tertiary" education, reflects the vital role accorded trade and industrial training in the attack on youth unemployment. In Western Australia, similar shifts in Government policy emphasis occurred during the 'thirties. The significant new factor in the later decade, of course, was the much expanded role of the Commonwealth Government.

On the matter of shifting priorities, conditions in the 'thirties drew forth attacks on liberal-general education and "progressive" ideas and practices. These received short shrift from businessmen, industrialists and politicians, who all wanted a return to the "basics", a stiffer pedalogy, and "useful" studies preparatory to employment. Complaints about declining standards, poor work attitudes, unrealistic expectations, and plain sloth among youth singled out the teachers, schools and the curriculum as in need of reform.(17) Evidence to support such complaints was mainly anecdotal during the 'thirties, when in any event Western Australia could hardly be caricatured as having succumbed to the "progressive" movement. On curriculum, the educationists in the 'thirties hotly defended "cultural" studies as an antedote to

premature specialisation and as facilitating adjustment to changing skill and citizenship skills in a time of crisis. Not only educationists but also economists argued further that an extension of compulsory education by one year would relieve the employment situation. Employers at the time conceded the last point only if the additional year provided a work-oriented programme. They advocated adoption of the Junior Technical School syllabus as preferable to leaving matters in the hands of conventional teachers and schools. Wolff in his 1938 Report sided with the employers.(18) Most of the 'thirties complaints and proposals, dressed up in contemporary language, reappeared in the 'seventies, at which time evidence about standards in the "basics" was perhaps more convincing.(19) In the later decade, extending compulsory education was no longer a feasible political option, although "staying on" at school had become general in response to the youth employment situation. Commonwealth and State initiatives at the time embraced the introduction of new "transition from school to work" programmes in the last year of schooling,(20) extended opportunities for full-time pre-apprenticeship training, and increased emphasis on the "basics" and remedial education.

Educationists in both decades walked a controversial tightrope, since it was painfully clear that few people in the 'thirties or the 'seventies had ready solutions to the problem of educating for employment. To some extent, the schools and teachers became "whipping boys" for a community facing difficulties beyond anyone's immediate capacity to solve. Educationists, however, faced a basic truth - that work is a legitimate focus of education and that without employment, happiness, a universal aim of all education, is simply impossible. The aims of the general-cultural curriculum, therefore, must be balanced by those with a more specific vocational orientation. Teachers and guidance personnel, too, may well need a better understanding of work opportunities and demands in commerce and industry.(21) The bureaucratic isolation of education from the community so entrenched in Australian states may well, in this connection, hamper a more productive communication between schools and the community. It is, nevertheless, clear that during both decades education became a convenient scapegoat. In fact, it is worth noting that many politicians, businessmen and industrialists complaining so loudly about current youth are among the age group which attracted similar approbium in the late 'thirties.

Given what already has been written, it comes as no surprise that governments in the 'thirties and the 'seventies sought to bolster the apprenticeship training system as one attack on youth unemployment. In this connection, witnesses in the Wolff Commission of 1938 raised most of the issues that dominated debate in the 'seventies. Now, as then, industrialists complained about the excessive length of apprenticeship indentures, the high level of apprentice wages, productivity losses due to absence at compulsory technical education classes, the relevance of apprenticeship training in a modern industrialised economy, and the cumbersome administration of apprentice training. The unions, on the other side, viewed apprenticeship as a well-tried training process, a protection against exploitation of minors, and (indirectly) a defence against dilution of skills and employment opportunities for qualified tradesmen.(22)

"Saving" and improving apprenticeship training was a feature of public policy in Western Australia in the 'thirties and the 'seventies. It took nearly thirty years for the State to respond to Wolff's proposals for new administrative reforms, and ironically, this followed the 1960-61 credit squeeze which badly affected the building industry.(23) Events in the 'seventies - the Tregillis Report(24) and the introduction of such programmes as the National Apprenticeship Assistance Scheme and the Commonwealth Rebate for Apprentice Full Time Training - produced Commonwealth assistance for apprentice and pre-apprentice training. As for Western Australia, the 1975 Industrial Training Act created new administrative

structures for conventional and adult apprentice training as well as industrial training.[25] Technical education for apprentices during the 'thirties received due attention in Wolff's inquiry, but attracted little support among either unions or industry. By the 'seventies, however, the role played by technical education had been fully accepted by parties concerned. Adult apprentice and industrial training were important features of the 1975 Act, since two aspects of current trends were recognised. One involved the very large commitment of major corporations to in-house training, and the other concerned the need to retrain skilled people thrown out of work by technological and economic changes. Earlier, during the Wolff hearings of 1938, industrialists had derided much apprentice training as out of touch with the realities of modern industry (although themselves doing little about on-the-job training), while Wolff himself mentioned difficulties faced by adults wanting to become tradesmen. At the time, however, Western Australian industry was too undeveloped for any substantial ventures to be expected.

Youth unemployment during the 'thirties and the 'seventies excited wide-ranging concern, although the statistical picture was much clearer in the later period. In the 'thirties, witnesses before the Wolff Commission stressed the debilitating psychological impact of prolonged unemployment, and they suggested many remedies - camps, banning of cinemas (as "pornography") and others. Philanthropic societies - the Boys' Employment League, the Citizens' Committee for the Relief of Unemployed Single Women and Girls, the Catholic Youth Employment League, the Ugly Mens' Association and the churches generally - helped hundreds of people, some with forms of training. The Junior Farmers' Club (1934) also was a response to the situation. The State Government itself became involved in the Youth and Motherhood Appeal. Experience with these schemes, and with technical education associated with the last mentioned, nevertheless convinced the Government that more was needed. In this connection the first Commonwealth Government assistance to technical education, in 1937, took the form of grants for the relief of youth unemployment. This enabled the construction of new trade facilities at the Perth Technical College.[26] More significantly, State Government authorities concluded that the employment situation would be eased only by the expansion of secondary industry in Western Australia. Without real jobs available, the philanthropic training schemes notably failed to attract youth.[27] During the 'seventies, Commonwealth Government initiatives included the National Employment and Training System, the Education Programme for Unemployed Youth, and other relief schemes. These, too, embraced training functions, some associated with technical schools. But whether, in the final analysis, these programmes will be of more than cosmetic value without real jobs for participants (as were the philanthropic schemes of the 'thirties) is moot.

Western Australia's experience in the 'thirties convinced both Labor and Liberal-Country Party Governments that secondary industry should be developed to counterbalance the State's over-reliance upon agriculture. This reliance in turn had been the outcome of policies to offset the State's difficulties early in the century in competing with secondary industry in other states. Indeed, the bitterness that produced a vote for secession in 1933 can be traced to this sense of domination by the "East". State Government promotion of manufacturing industry eventually produced, some twenty years later, the industrial complex at Kwinana. As for the late 'seventies, part of the solution to unemployment is seen to depend upon economic development, for example that promoted by the Premier Sir Charles Court. One major project about to commence involves the introduction of joint Commonwealth-State training schemes to supply the skilled labour required.[28] Without the jobs, the training would be pointless, and without economic expanison the jobs would not be created. It is worth noting that apprenticeship and

industrial training legislation in 1975 promised to assist Government, employers and unions reach agreements concerning the proposed training programmes.

In the matter of employment and training, a feature of the Western Australian as well as the national scene has been the heightened priority accorded manpower planning at times of crisis, when ironically migration has normally dwindled. This certainly happened during the 'thirties when Wolff proposed the establishment of an Economic Research Bureau to provide statistical and other information about development and employment. Efforts to launch the Bureau failed in the face of vigorous opposition among employers. Turning to the 'sixties, Western Australia's huge mining ventures relied upon thousands of workers trained by the companies involved, or recruited from out-of-State. Similarly, skilled labour for the Kwinana complex was recruited from Britain or trained by the companies concerned. Recession in the 'seventies, which produced a familiar contraction of immigration, heightened concern about local industrial and trade training, not to mention national initiatives encompassing the establishment of the National Training Council and the National Employment and Training System. Based on past experience, immigration may well recover if and when the economy improves, although Australia in future years may have difficulty in attracting sufficient numbers of skilled workers from Europe. So the need to train local personnel is likely to remain with Australian States. In the broader picture, it seems unduly pessimistic to believe that the nation will never pull out of the current recession, or that employment will never return to more normal levels, even if these do not match the standards set during the prolonged growth period after World War II.

A special theme in debates about unemployment in the 'seventies concerned the participation of women in the workforce and in technical education. This theme also figured in Western Australian debates of the 'thirties.[29] Then, as now, adult women were accused of taking jobs from young people and particularly boys, instead of being content with the roles of motherhood and housewife. The response in the nineteen thirties - to establish arbitration awards for domestics and to introduce technical education programmes in domestic science - would provoke a revolution among contemporary feminists. Yet even in the 'seventies, when women comprised nearly half the workforce, post-school enrolment patterns showed much to be done in opening up training programmes to women. In technical and further education, women still dominate the commercial-office and general-adult education programmes, as in the 'thirties, and they are still absent from the trade and technician level courses. There still remain "women's" occupations, although change is taking place, and in this connection the role of technical and further education will be critical. Ultimately, however, technical education can achieve little more than the community will permit.

Current preoccupations with recurrent education rattle skeletons of long-standing in Western Australia's post-school education system. From an historical perspective, the formal and informal functions of mechanics institutes, evening technical classes, continuation classes, and part-time and correspondence study, were all associated with providing opportunities for the less affluent to move into areas of the workforce appropriate to their ambitions, talents, training and experience. The University of Western Australia during the 'thirties established a remarkable record of community-oriented work, including adult admission schemes, sub-graduate and emergency courses, adult education, and part-time and external tuition. Revisions of the University's affiliation statute in 1937 had the specific objective of extending university patronage to weaker institutions and reaching out to a community in trouble. Ironically, the evening and continuation class in technical schools were curtailed during the early

depression years, although they revived later in the decade owing to persistent community demand. Correspondence courses for mining personnel, country apprentices and those interested in general secondary education were being actively promoted by 1940.(30)

During the 'seventies, Western Australia possessed a well-developed base of part-time, adult and correspondence education upon which adult re-training and recurrent education could be expanded. Some notable achievements included re-training schemes for bricklayers, furniture tradesmen and skilled miners, and a cooperative venture between the Commonwealth and State governments to train workmen for construction of a gas pipeline from Karratha to Perth. Part - time and external education in advanced and university education also was well developed;(31) by 1978 indeed, all tertiary educational institutions were entering a phase where coordination and rationalisation of external teaching was considered desirable.(32) Technical and further education, greatly stimulated by Commonwealth support after 1974, continued to contribute heavily in the area of correspondence education. With respect to recurrent education, a feature not present in the 'thirties is the range of training outside the education system, in companies, government departments and the trade unions. Pressures could well develop for such programmes to be integrated into the institutionalised pattern of training. It would be interesting to follow up this line of argument in connection with the possibilities of introducing "educational leave", which has attracted considerable attention in Europe.(33) However, that lies beyond the scope of this paper. Meanwhile, in Western Australia, the 1975 Industrial Training Act provides a vehicle for the development of greater coordination between the formal and non-formal sectors of technical and further education.

Conclusions

In total sum, community reactions to education in the 'seventies' recession bear an almost eerie resemblance to reactions during the 'thirties depression. Economic conditions in both periods caused Western Australian society to question the effectiveness of its education system in preparing youth for employment. State Government action in the wake of public inquiries focused on tight financial and administrative controls, restraints on higher education expansion, a return to the "basics", high priority for vocational and pre-vocational education, and reforms to the apprenticeship and industrial training systems. In this respect, community dissatisfactions were an understandable response of people genuinely concerned about the plight of unemployed youth but powerless to solve the problems involved. Education in this context became a scapegoat, although the situation was compounded by the isolation of educational institutions from the community, either through the insulation of bureaucratic structures or by virtue of academic autonomy. The educationists clearly needed to listen to arguments about the need for education to be oriented realistically to the world of work, because in better economic times they perhaps lost something of this orientation. But the answers to employment clearly lie well beyond educational institutions, - with economic development, industrial relations policy, and wider areas of Government policy. Better communication between education and the community may not fundamentally alter this fact, but at least it might create more understanding from both sides concerning the possibilities and the limits of educational aspirations and responsibilities.

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CONVERTING MEMORY PROTOCOLS TO SCORES ON SEVERAL DIMENSIONS

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Cognitive structure is an important but nebulous construct in the theory and practice of learning. White (1979) argued that to achieve clarity in its definition one must specify a number of dimensions, and suggested a set of nine to initiate discussion. White also considered how several existing methods of investigating cognitive structure illuminate these dimensions, but his discussion remained general and did not get to details of how the information obtained by any of these techniques could be translated to scores on any of the dimensions. The present paper details how memory protocols obtained in individual interviews may be translated to scores on several of White's dimensions. Following a description of how the interviews were conducted, the first substantive section describes the process of translation and identifies difficulties and discusses options. The second section considers the results, in which consistent traits of individuals are identified. The third section discusses the level of knowledge displayed by the people interviewed, and comments on implications this has for education.

Conduct of Interviews

The two authors shared the interviewing task. In total they saw 28 science graduates, of ages 20 to 27, who were enrolled in the Diploma of Education program at Monash University. Each respondent was asked about two topics, first electric current and then, immediately following, eucalypts. These topics were chosen because they were thought to be subjects on which the graduates would be moderately well-informed, and because they were unrelated. The lack of relation was necessary because one purpose of the study was to see whether there were consistencies across topics in individuals' standings on many of these dimensions.

The lengths of the interviews depended on how much the respondents knew. For the two topics combined they ranged from 25 minutes to 75 minutes.

Each respondent was told that the purpose of the study was to see how people arranged knowledge in memory, and that they would be asked to tell all they knew about two topics. They were asked if they minded the interview being recorded, and were assured that the recordings would be anonymous.

They were first asked, "What can you tell me about electric current?" This question prompted from 3 to 20 statements. When the respondent indicated that nothing more was coming to mind, the interviewer asked "Do you have any personal experiences relating to electric current?" and then, later, "Do you have any mental pictures relating to electric current?" These three questions were designed to elicit three types of element in cognitive structure, which Gagné and White (1978) called propositions, episodes, and images. Next, the same three questions were asked about resistance, potential difference, Ohm's Law, charge, insulators, batteries, AC, and DC, which were chosen as important concepts in electricity. The interview then became more specific. The respondents were asked what they knew about formulae and definitions involving electric current, things they saw as similar or analogous to electric current, properties of electric current, its production, its uses and effects, its measurement, types of electric current, the history of electric current, and whether they recalled any incidents in films or books in which electric current played a major part. Finally they were asked whether anything else about electric current had occurred to them. Much the same procedure was then followed for eucalypts.

The respondent's share of the interview was then transcribed as a set of distinct propositions, images, and episodes.

Translation of Protocols to Scores on Dimensions

White's (1979) nine dimensions are:

1. Extent, how much the person knows of a topic.
2. Precision, how clear and complete each element of memory is.
3. Internal consistency, whether there are contradictions in the person's knowledge.
4. Accord with reality or generally accepted truth, what one might call the accuracy of the knowledge.
5. Variety of types of element, the relative proportions of propositions, images, and episodes.
6. Variety of topics, the range or diversity of the person's knowledge.
7. Shape, a difficult dimension to define but which refers to the pattern and degree of association among the elements of knowledge.
8. Ratio of internal to external associations, the proportion of associations which involve concepts that are judged to be an integral part of the topic as contrasted with those that may be seen as more general or more belonging to another topic.
9. Availability, the ease with which knowledge is recalled.

Extent. The extent score was taken as the total number of propositions, images, and episodes, whether accurate or not.

Precision. Each proposition was scored as vague or precise. This has to be subjective, and perhaps should be checked by the degree of agreement among independent observers. In this study, which to some degree must be regarded as a preliminary effort, we merely discussed any difficult cases and made a joint decision. The precision score was taken to be the fraction of the total number of propositions which was accepted as precise.

Internal consistency. Our intention was to score internal consistency as 1 minus the fraction of the number of conflicting pairs of propositions divided by the total number of propositions. However, only two pairs of conflicting statements were observed, so nearly everyone scored 1.00 on this dimension. This might not be the case with other groups of respondents or other topics.

Accord with reality. Each proposition was scored as correct or not. The authors, backed by reference texts, were thus the authority for "reality or generally accepted truth." There is as little difficulty in this as there is in scoring any factual test. The dimension score was calculated as the fraction which was scored correct of the total number of propositions.

Variety of types of element. The fractions of propositions, images, and episodes making up the total extent were calculated. Thus this "dimension" was represented by three scores. For most purposes that may be the most useful way of representing this aspect of cognitive structure. However, there may be some occasion on which a single score is required, so an index was invented equal to the reciprocal of the sum of the squares of the three fractions. This index takes its maximum value of 3 when there are equal numbers of propositions, images, and episodes, and its minimum of 1 when only one type of element is present.

Variety of topics. This dimension refers to a property of the total memory store, and cannot be assessed in this study where only two topics were sampled.

Shape. Experience gained in this study leads us to the view that White's (1979) initial postulation of this dimension left it rather vague, and that dividing it further may add to the clarity of the

description of cognitive structure. Even further work is necessary; at present we identify only a dimension of linking. The derivation of scores on degree of linking and the trend of our thoughts about the rest of shape takes some space to describe.

The main concepts in the first proposition of a protocol are written on a sheet, and are joined by lines. For example, the proposition "Electric current is carried by charged particles" yields the concepts current, charge, and particle, which would be placed as a triangle with a line linking each pair. Subsequent propositions yield further concepts and linking lines. Any pair of concepts may be joined by any number of lines, depending on how many propositions they are mentioned in together. Images and episodes are then added, and are joined by lines to any concepts that they contain or refer to. In this way a map is constructed of each respondent's cognitive structure. Figure 1 is an example. This approach is a relatively simple means of obtaining a spatial representation of cognitive structure, but does rest on several debatable assumptions. The most central assumptions are that an array can represent the true nature of cognitive structure, and that using concepts as modes in the array is a valid way to represent the mode of storage in cognitive structure. As we are not satisfied with the present notion of shape these assumptions may be discarded in future work.

The pictorial form of these maps is interesting, but so far is not amenable to scoring. The numbers of concepts and links can be used to obtain an index of degree of linking, but the appropriate algorithm is not obvious. We chose the mean number of links per concept, but that turned out to be highly correlated with Extent, which may be a disadvantage. The point is discussed in the Results section below. Other aspects of shape besides degree of linking remain unscored.

Ratio of internal to external associations. All of a person's knowledge is a whole, but it is common for it to be conceived as being divided into topics. The concepts which were obtained in evaluating Shape can be classed as integral parts of the topic or as external to it. Thus battery, charge, multimeter, superconductor, electron, shock, anode, [illegible] classed by us as internal to the topic of electricity, while externals included heat, power, flow, magnets, traffic, polymers, string, steam. This classification is, of course, subjective; another way of putting it is that the concepts were considered in relation to their standing in our, the judges', cognitive structures. Together we had little trouble in agreeing on each concept's place, but confess that the classification is rather arbitrary.

The numbers of links to each of the two classes of concepts were summed. The index calculated is the number of links to internal concepts divided by the total number of links, so it is a measure of degree of internal linking. It was preferred to the ratio of internal to external links because the distribution of the latter is more likely to be skewed.

Availability. Interviews of this type may not be an effective way of measuring availability, as the interviewer's part takes up more or less time depending on rapport with the respondent. We could have obtained an index of availability by dividing the extent score by the number of minutes in the interview, but chose not to.

Results.

The vectors of scores obtained on the several dimensions for the 28 respondents are shown in Table 1, and a matrix of correlations between all pairs of dimensions is shown in Table 2.

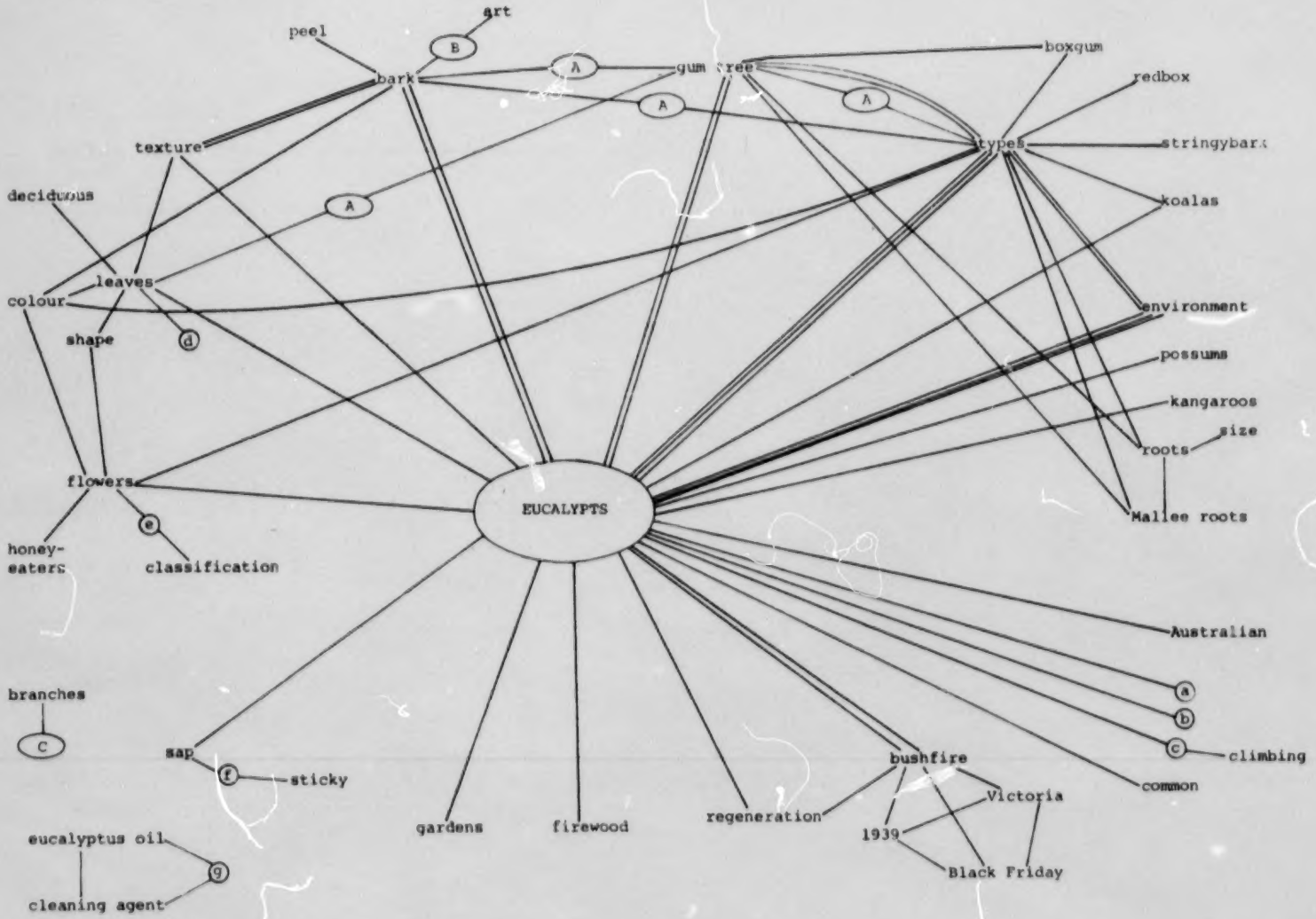

Figure 1: A representation of the protocol (eucalypts) obtained from respondent 21. (Images are indicated by upper case letters - (A) ; Episodes are indicted by lower case letters - (a))

Most of our interest is in some of the correlations in Table 2. This interest is in two parts, one on the correlations among different dimensions within a topic, and the other on the correlations between the scores on the same dimension across topics.

Correlations between different dimensions. White (1979) argued that descriptive dimensions need not be orthogonal to be useful. Nevertheless, if there were high correlations of one dimension, such as Extent, with all or several others the descriptive value of the set of dimensions would be reduced. As it happens, Extent correlates highly only with Degree of linking, so the other dimensions do add information to the description of cognitive structure.

The very high positive correlations between Extent and Degree of linking constitute a difficulty which is not resolved in this paper. The problem is that while some other algorithm could be applied to the numbers of links and concepts which would yield a smaller or even negative correlation, on theoretical grounds we would expect someone who has their knowledge well linked together to recall more of it. Therefore there should be a positive correlation between Extent and Degree of linking. Correlations of over 0.8, however, are too large to be useful. We conclude that our present conceptualization of Shape is unsatisfactory, and that it may be profitable to think about it in an entirely different way.

The high correlations between the Percentages of propositions, images, and episodes and the Variety index are a mathematical artefact. Among the other correlations Precision is strongly related to Accord with reality, which is comprehendable, and strangely it is negatively related to Percentage of images. Before making anything of the latter relation we should like to have it replicated in a further investigation. No sensible pattern can be discerned among the other correlations; their erratic nature and generally low values support the belief that each dimension other than Degree of linking adds something to the description of cognitive structure.

Correlations across topics. The most interesting finding of this study is the set of relatively high positive correlations for each dimension across the two topics. The topics were chosen to be unrelated, and there is no essential requirement that someone who knows a lot about electricity should know a lot about gum trees. Yet such turns out to be the case. It could be, of course, not that considerable knowledge of current goes with considerable knowledge of eucalypts, but that the Extent score on both is determined largely by a single trait, the willingness to respond in an interview. That remains to be checked. Our impression, from observation of the respondents, is that that alternative explanation is not correct. It seems more reasonable to interpret the high positive correlation for Extent scores as an outcome of a set to learn, to acquire and store information.

The other set of correlations of interest to us is the one containing the percentages of the three types of element. The positive values for these imply the existence of a set to store information in one or other form. Respondent 13 in Table 1, for instance, has a remarkable propensity to recall episodes in both topics, while Respondent 9 has one for images. This discovery is likely to be important.

Despite the subjective nature of the classifying of concepts as internal or external, the moderate positive correlation between Percent internal connections across topics indicates a further trait which may be important in the theory of learning. The correlation is exemplified by Respondents 4 and 10, who have relatively low proportions of internal connections for both topics. Results obtained by Mayer and Greeno (1972) suggest that external connections are desirable.

Further work should investigate what underlies these characteristics of tendency to form external connections and preferences for either propositions, images, or episodes. They appear likely to be important in education.

Level of Knowledge

While opinions about how reasonable are the levels of the graduates' knowledge of the two topics are of no value to theory, they can affect practice. The protocols have two notable features: great diversity, and a lower range reaching an abysmal level of ignorance. For electric current Extent scores range from 29 to 145, and for eucalypts from 13 to 110. The observation of such ranges in Extent emphasises the importance of considering prior knowledge before teaching new material. Respondent 3's knowledge of electric current and Respondent 27's knowledge of eucalypts are remarkably low for people who are certificated successes of our educational system. Of course, it could be argued that it is unreasonable to expect everyone to know a lot about any one topic chosen from the universe of knowledge. However, we would have expected science graduates to have a greater knowledge of electricity than was shown by at least a third of the respondents, and it concerns us that so many have been so untouched by the purpose of science teaching to make people more observant that they have never seen flowers on eucalypts and indeed are unsure of whether eucalypts do flower. It seems that some of the respondents have learned, from 16 years of formal education, to pass examinations but have missed other, more crucial parts of an education.

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Table 1

Dimension Scores for All Respondents

Respondent	Electric Current									Eucalypts								
	Extent	Precision	Accord with reality	% propositions	% images	% episodes	Variety	% internal	Linking	Extent	Precision	Accord with reality	% propositions	% images	% episodes	Variety	% internal	Linking
1	97	.93	.99	74	9	17	1.71	76	4.53	100	.99	.98	83	1	16	1.40	58	4.74
2	71	.83	.97	88	6	6	1.26	58	3.78	63	.96	1.00	81	5	14	1.47	61	4.62
3	29	.80	.96	86	0	14	1.31	52	3.40	28	.95	1.00	78	4	18	1.54	57	3.47
4	58	.90	.96	83	7	10	1.43	44	4.51	31	.87	.96	74	10	16	1.71	54	2.90
5	54	.91	.98	80	11	9	1.53	65	4.00	42	.97	.93	69	5	26	1.83	60	3.26
6	33	.89	.96	85	3	12	1.36	57	2.91	37	1.00	.93	79	5	16	1.55	58	3.22
7	31	.90	1.00	68	16	16	2.43	55	2.73	18	1.00	1.00	50	11	39	2.41	65	2.30
8	69	.85	.96	69	9	22	1.86	58	3.90	68	1.00	.96	78	7	15	1.58	64	4.46
9	59	.72	.91	73	17	10	1.75	70	3.67	15	.73	.91	73	20	7	1.72	87	3.25
10	92	.89	.97	81	3	16	1.48	52	4.60	55	.97	.97	73	2	25	1.68	43	4.00
11	68	.86	.95	85	4	11	1.35	61	3.73	33	.96	.92	76	3	21	1.61	57	3.11
12	35	.81	.93	78	11	11	1.61	57	3.17	34	.89	.93	82	3	15	1.43	55	3.74
13	49	.84	.94	63	8	29	2.05	61	2.98	68	.98	1.00	63	4	33	1.97	57	4.20
14	74	.80	.96	80	7	13	1.52	60	3.84	54	.98	1.00	80	2	18	1.50	60	3.81
15	145	.88	.98	90	3	7	1.23	58	6.04	110	.89	.93	82	5	13	1.44	48	4.99
16	44	.80	.83	80	9	11	1.52	44	3.23	32	.94	.88	77	5	18	1.61	60	2.26
17	59	.73	.98	68	29	3	1.83	60	3.51	32	.96	1.00	78	6	16	1.57	52	2.97
18	60	.84	.96	82	3	15	1.44	48	6.07	51	.88	1.00	49	12	39	2.46	35	5.04
19	54	.63	.83	74	7	19	1.70	45	3.62	25	.88	.94	68	12	20	1.94	51	2.80
20	111	.90	.97	77	8	14	1.62	52	5.53	109	.99	.99	79	2	19	1.52	37	4.61
21	39	.86	.82	72	8	21	1.76	49	4.16	46	.81	.97	78	7	15	1.57	55	3.64
22	46	.62	.64	85	11	4	1.36	53	2.80	27	.71	.86	78	7	15	1.57	55	2.40
23	108	.84	.90	71	6	23	1.78	47	4.48	106	.95	.99	77	5	18	1.61	45	4.82
24	67	.90	.91	91	3	6	1.20	48	5.60	23	.79	.95	83	9	9	1.42	56	4.11
25	64	.84	.82	77	6	17	1.60	61	3.34	40	.82	.88	85	3	13	1.35	61	4.06
26	89	.90	.89	80	8	12	1.52	60	3.79	68	.88	.88	87	4	9	1.30	56	3.75
27	31	.74	.83	74	16	10	1.71	53	3.10	13	.75	.63	62	23	15	2.17	59	2.88
28	33	.77	.92	79	12	9	1.53	49	2.89	28	.91	.86	79	11	11	1.54	61	2.87

Table 2

Correlations Between Dimensions

	ELECTRIC CURRENT								EUCALYPTS							
	Precision	Accord with reality	% propositions	% images	% episodes	Variety	% internal	Links	Extent	Precision	Accord with reality	% propositions	% images	% episodes	Variety	% internal	Links
ELECTRIC CURRENT																	
Extent	.36	.28	.17	-.26	.03	-.22	.19	.71	(.84)	.19	.26	.34	-.39	-.16	-.36	-.40	.69
Precision		.63	.14	-.38	.21	-.03	.18	.44	.46	(.50)	.34	.09	-.44	.19	-.13	-.20	.46
Accord with reality			-.02	-.06	.07	.10	.30	.33	.33	.72	(.53)	-.12	-.24	.30	.08	-.08	.40
% propositions				-.58	-.62	-.92	-.19	.35	-.05	-.17	-.07	(.35)	-.17	-.29	-.35	-.18	.09
% images					-.28	.56	.26	-.40	-.30	-.13	-.22	-.16	(.38)	-.07	.18	.35	-.44
% episodes						.55	-.03	-.03	.34	.32	.29	-.26	-.16	(.41)	.24	-.12	.32
Variety							.16	-.37	-.03	.21	.11	-.49	.21	.43	(.48)	.23	-.18
% internal								-.13	.22	.15	.06	.19	-.18	-.11	-.22	(.47)	.22
Links									.56	.01	.33	.03	-.12	.04	-.04	-.56	(.69)
EUCALYPTS																	
Extent										.42	.38	.28	-.53	.01	-.31	-.48	.80
Precision											.58	-.04	-.60	.43	-.01	-.24	.23
Accord with reality												-.00	-.55	.36	-.07	-.24	.40
% propositions													-.51	-.83	-.99	.09	.18
% images														-.06	.57	.37	-.36
% episodes															.78	-.35	.02
Variety																-.09	-.21
% internal																	-.41

STRUCTURAL CHANGE AND YOUTH UNEMPLOYMENT: IMPLICATIONS FOR SCHOOLING

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Introduction

The purpose of this paper is to demonstrate that the attempt to establish a causal relationship between the growth in youth unemployment and the supposed inadequacies of contemporary schooling in Australia, cannot be substantiated. The proponents of such a view include industrialists, politicians, the media and some academics. They allege that the primary responsibility for youth unemployment can be traced to the inadequate preparation provided in schools for early school leavers. This extreme position has already been undermined by both government research[1] and independent inquiry[2], but it has succeeded in mystifying the real context of growing unemployment, and in obscuring a critical analysis of the problems inherent in school systems in Australia.

The Williams Report considered criticisms that schools have been responsible for the rapid increase in youth unemployment. The Committee was clearly persuaded that not all of this criticism was accurate, but its hesitancy even to decide if any aspects were valid is indicated by the qualified nature of this comment:

> "The detailed statistics on unemployment do indicate, however, that there is a serious underlying youth unemployment problem to which changes in schooling could have contributed, or to the solution of which changes in schooling might contribute."[3]

We wish to argue that if schooling is to assist in providing some solution to the problems of youth unemployment, there must first be a more serious recognition and analysis of the economic crisis which extends throughout all advanced capitalist economies, and of the meritocratic nature of Australian school systems. In the absence of such an analysis, it can be concluded that criticisms and proposals made by politicians, and educational researchers, are much more likely to be based on narrow political considerations and a limited and distorted view of the relationship between Australian schooling and society. We must first then, outline some of the major features of structural change in the economy that have occurred in the last decade, then link these to an analysis of schooling, and finally draw some of the implications which we believe to be important.

Contextual Framework

This paper is not a report of original research, but rather depends on an analysis of a range of other studies concerned with economic change, transition from school to work, and school curricula and its effectiveness. The sources include government department reports, Commissions of Inquiry, and independent research.

Fundamentally, our arguments depend on the view which considers education institutions in advanced capitalist societies to be integrally linked with both economic processes and social structure. Schooling contributes directly to the productive process by supplying a workforce which has both general and specific skills, and possesses the appropriate attitudes and experience to maintain industrial stability.

Through credentialling, schools systems have given apparent neutrality to a process of selection to different levels of the workforce, a process which in effect has been significant in maintaining relative social positions across generations in the class structure, while allowing limited social mobility. During periods of rapid or consistent economic growth, these relationships are obscured. However, in situations of economic recession and structural change, it becomes clear that education is a state enterprise which is linked directly to the needs of the labour market.

Structural Change

Structural change, or structural adjustment, is a term that has become widely used in Australia, with a range of conflicting meanings. For the purposes of our arguments, "structural change" refers to the process of significant change in the patterns of organization of resources, including capital and labour, in the Australian economy, and in its links with the rest of the world. Structural change in the economic sector has direct consequences for social structure, government social policy, and hence schooling.

The present process of structural change is quite clearly being implemented in the context of a deep-seated, world-wide recession.[4] The recession, which followed the long boom of post-war economic growth, was precipitated by the undermining of the U.S. as the cornerstone of international capitalism (reflected in the floating of the U.S. dollar in 1971). It was compounded by an overproduction crisis, and by the sudden increase in energy costs by OPEC in 1973. The recession has itself contributed to the high levels of unemployment, rising prices, dramatic changes in areas of public policy, and increasing levels of social anxiety. In addition, it has produced a situation of economic crisis in which the dimensions of structural change have been obscured and confused, and in which policies have been initiated to enhance and maintain the profitability of the transnational corporate sector. Some of the key features of the process of structural change are the following:

(a) integration into the world capitalist economy. In the expansionary phase of the post-war era, the Australian economy continued to depend heavily on the exports of rural products, while a small, highly protected manufacturing industry was established. Australian manufacturing has never been generally competitive in export markets. In the 1970's pressures from transnational corporations and our major trading partners, (the U.S., Japan and Europe) have been directed at securing more open and efficient access to Australian raw materials and energy, whilst ensuring that Australia also becomes a more accessible market for manufactured goods.[5] The effect of this restructuring is to increasingly integrate the Australian economy into the world capitalist systems.

(b) industrialization of Asia. The emergence of sophisticated technological production techniques which require semi-skilled or unskilled labour has enabled transnational corporations to take advantage of the investment concessions offered in Asian countries. The corporations are not interested in the skill levels of the workforce, but simply the cost of labour. Already more than 200 Australian companies have shifted all or part of their operations from Australia to overseas locations,[6] mostly in the Asian region. At a more general level, this pattern signifies the emergence of an international division of labour. As the world economic system becomes more integrated, unskilled and semi-skilled labour will increasingly tend to locate in the periphery (the so-called under-developed or developing world,) while technology requiring high skills will remain in "developed" countries. This parallels the internationalization of capital implicit in the preceding section.

(c) dependence on foreign capital. Throughout the post-war period, a fundamental issue in Australian politics has been the extent to which Australia's development and growth should be dependent on foreign capital and technology. In recent years, foreign investment has increased steadily, and the proportion of company income payable overseas has risen dramatically from 25.8% in 1974/75 to 35.6% in 1977/78. Since April 1976, 4,437 proposals have been considered by the Foreign Investment Board and only 0.7% were rejected. The Board has also approved 3,444 foreign takeovers of businesses which have assets of more than $2 million.[7] The most serious consequence of this pattern of foreign investment is not the export of profits, but the growing dependence of the Australian economy on foreign decision-making, and the subsequent vulnerability to foreign decisions about the location of investment and plant. At present the federal government in Australia is facilitating this development, and is supporting the interests of foreign capital over and against those of domestic capital. The recent Pagewood decision by GMH is an indication of this.

(d) labour force distribution. Table 1 shows the long-term trend for an increasing proportion of the labour force to be employed in the tertiary sector, while the proportion engaged in the rural sector has declined. Employment in the mining sector has remained relatively constant since the second world war, despite the massive increases in investment in all types of mining during that period. In the manufacturing industry, there has been a steady decline in the proportion of the labour force employed in this sector since 1961.

TABLE 1 - Employment Changes between Industry Sectors in Australia

(percentages)

INDUSTRY SECTOR	1911	1921	1931	1941	1951	1961	1971	1976
Rural	25.0	24.0	26.0	19.0	14.0	11.1	7.9	6.3
Mining	6.0	3.0	2.0	2.0	2.0	1.3	1.5	1.2
Manufacturing	21.0	22.0	18.0	25.0	29.0	27.6	24.2	21.7
Services	48.0	51.0	54.0	54.0	55.0	60.0	66.6	70.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(Source: Industries Assistance Commission, 1978)

The decline in this respect has been much more marked during the last decade. Since June 1974, Australia has lost almost 250,000 manufacturing jobs[8], while the proportion employed in the services has increased significantly over the same period. At present more than 70% of the labour force are employed in the services sector. It is crucial to understand that it is this growing sector which is the most vulnerable to the new automatic data-processing, information and communication technologies, and to reductions in government spending, education being a good example. The result of these developments is that the structure of the Australian labour force is likely to continue to undergo substantial change characterised by increased uncertainty and fluctuation in employment.

(e) the impact of technological change. In a recent paper to an ACER seminar on "Societal Change and Its Impact on Education", Professor Williams argued strongly that new technologies should be welcomed to "create employment in new products and process innovations to maintain our comptetitive position ... new technologies have been responsible for a very great increase in the number of jobs. For a given population, new technologies both create and eliminate jobs". This point of view, largely in accord with

the views in the Myers Report,[10] depends on a strictly economistic perspective on the role of technology in production. It fails to take account of the way in which new technology has been used in the context of the current recession, to reduce employment opportunity, rather than increase production. Thus it serves as an important means of maintaining, or enhancing, corporate profitability. Williams and others also ignore the new international division of labour, previously mentioned, so that while new technology contributes to greatly increased employment opportunities in the Phillippines or Indonesia, it effectively reduces them in Australia.

The development of this international division of labour is also facilitated by the extent of control which the new technology enables management to exercise over individual workers, and the production process as a whole. This control now extends to transport and communications, thereby facilitating the greater integration of national economies into the world system.

In spite of Professor Williams assertions, the Australian experience with technological change has been that it has contributed to the displacement of labour, as well as changes in the content of work, and the organisation of the labour force.

One aspect on which little research has yet been done is the deskilling of work in what were previously highly-skilled occupations (e.g. furniture trades). It is claimed that new technology will require the development of new levels of skilled manpower, but the evidence for this in Australia indicates that fewer jobs will become available in the future. Manpower planning is always a complex and difficult task, subject to many inexact variables, but a recent study by the Foundation for Australian resources, a research organization, has predicted that the introduction of computers alone will cause an extra 6% unemployment (25,000) over a 12 year period. A further 140,000 workers will find new jobs either as a result of retraining, accepting less skilled positions, or shifting geographically.[11]

The Australian Economy and Unemployment

The purpose of this discussion is to outline the factors which have led to the high level of unemployment in Australia at the beginning of the 1980's. In the years 1974-79, the unemployment rate for the 15-19 years group rose from 4.2% to 17%; for the 20-24 group, it rose from 2.4% to 9.3%; and for the 25 and over group, from 1.1% to 3.7%.[12]

The evidence is clear that young people have borne the main consequences of unemployment increases. In February 1980 youth aged 15-19 constituted 38% of the total unemployed.[13] Many reasons have been advanced to explain this phenomenon. Demographic changes, resulting from the stabilization of school retention rates, have meant an increase in the number of school leavers entering the labour market at the end of each year, and neither the private nor the public sectors have created sufficient new positions. The private sector, in fact, has not grown at all since 1975.[14] Furthermore, many full-time jobs have been replaced by part-time positions.

It has also been suggested that the growth in the number of married women seeking jobs has adversely affected the opportunities for young people This claim has been sharply contested by those who claim that labour market segmentation means that young people are not in competition for jobs with married women. In any event, it is likely that the involvement of married women will increase rather than decline as the level of wages and pensions is depressed further and the family income needs to be supplemented.

Two other factors seem to be of more significance, especially in the longer term. The first

is the changes in the type of jobs available, in which the proportion of unskilled and semi-skilled positions have been steadily diminished.[15] For early school leavers in particular, the types of jobs in which they historically gained early work experience, are no longer available in sufficient quantities. Secondly, with the constant pressure to improve profitability, in the face of limited market activity, employers have avoided the high level of costs associated with on-the-job training for young workers. The responsibility for vocational training, even of the most elementary kind, has shifted to the public sector, at the same time as resistance to further taxation has grown.

Youth Unemployment and Schooling

This attempt to shift the responsibility for vocational training from the private to the public sector helps to explain why youth unemployment has been alleged to result from inadequate schooling. New demands were placed on school systems by employers, who now require less labour, with different skills in a time when they have far more applicants for jobs than they know what to do with. With the pressure on funding which resulted from the government's monetarist response to the recession, it is not a question of simply developing new areas of education to meet these needs, but of redefining the purposes of schooling in a much more precise manner. This has of course led to conflict with the egalitarian and liberal policies of the Schools Commission, and hence the debates over the provision of schooling have extended to much more complex issues, as the different interest groups involved in educational policy-making have struggled to maintain or reassert their view of how schools should be funded, organized and controlled.

Structural Change and Education Policy

It is clear that as a result of the recession, the dramatic level of structural change, and the fiscal and monetarist policy of the federal government, high levels of unemployment exist because there are simply insufficient jobs available in Australia for the number of people who need, or want, a job. In order to understand the context in which education policy is, or will be, formulated in response to this new situation, it is important to examine the longer-term implications of structural change and the implications for public policy as a whole. Three factors are of particular importance:

(1) loss of control. Public sector provisions have always been central to the standard of living of the Australian people. Not only have state enterprises and bureaucracies been important employers themselves, but in areas of health, welfare, education, transport, and communication, it has been state enterprises which have provided much of the resources. Therefore, as the Australian economy becomes more dependent on the international economy, and especially the investment decisions of trans-national corporations, the pressure on governments to direct resources towards corporate activities in order to attract investment will inevitably lessen their capacity to maintain social services at the present levels.

(2) technology. It is likely in the longer term that new technologies will transform the productive process as we now know it, so that labour power will become a much less significant economic factor than it has been. Furthermore, it is likely that rather than requiring new and higher levels of skills and knowledge, fewer skills will be required from those people who do gain employment. The use of new technology in Asia is an indicator of the extent to which unskilled workers can operate highly sophisticated machinery. A third issue, habitually ignored by such people as Williams and Myers, is who will control the process of introducing new technology. In whose interests would a particular machine or other new technology be introduced, and what mechanisms would exist to resolve such a question? In

Australian society at present, a complex web of political and industrial institutions gives an appearance that some elements of democratic decision-making exist. This web is important in maintaining a high degree of social cohesion and compliance. If the legitimacy of these institutions is further undermined, there may be serious consequences for the openness and stability of the social system in Australia. These questions about technology are important because they point to fundamental implications for the nature of our society that have as yet received little public consideration.

(3) labour force structure. In the longer term it seems inevitable that the shape of the work-force will be substantially different. Apart from the large numbers of permanently unemployed, there will be a very small group of highly paid political and economic managers and technocrats; a reasonably large group of semi-skilled people who will perform simple and repetitive tasks; and a reasonably large group of unskilled workers whose employment will be both casual and marginal. A school system intended to supply such a labour force would need to be much less costly and less elaborate than the present system.

For government, there are two problems in particular which emerge in response to the pressures which have arisen from economic restructuring:

(1) how to manage the fiscal crisis in which the government is pressured to simultaneously provide more human services, allocate greater resources to industry assistance, and to reduce levels of taxation.

(2) given the enormous social and political crises that are likely to follow from growing unemployment, reduced wages, and reduced human services, how is the state enterprise to retain its legitimacy in the view of the majority of the population. If the state can no longer offer ordinary people sufficient expectations to justify their continued compliance, then it faces the prospect of radical upheaval.

Although this problem faces policy makers in many areas of public policy, we can pose the dilemma succinctly in relation to education. In the post-war period, educational opportunity has achieved wide public acceptance as a means of social advancement and intergenerational mobility. This was possible for some people because of the demand for a more highly skilled workforce in general, and a ready supply of people with specialised academic training in particular. In the early 1970's public pressure for more opportunities, and the recognition that the school system played a significant part in maintaining social inequality, led to new policies and much greater federal investment in education, in order to produce more equal outcomes.

Less than a decade later, the "need" to curb state expenditure has drawn the focus back to education policy. This time, the question is how to reduce state expenditure, while at the same time not undermining public commitment to the possibility of educational opportunity and achievement. It is our contention that this has necessitated the mounting of an ideological program, alongside the continuing reduction in funding, and restructuring of the public sector in general. In the case of education, the key to the ideological program has been the focus on basic skills, and the inadequacies of the present school system. This campaign, tied to youth unemployment has depended on assertions and the manipulation of evidence by politicians, educational researchers, and other intellectuals. Yet, there is no evidence which conclusively indicates that standards of educational achievement have declined in Australia, and if anything, they may have improved. This is admitted even in the Williams Report. In the recent ACER Report School, Work, and Career the authors are very careful to qualify the conclusiveness of their results, but nevertheless, they state that:

> "Presumably, employers see extra schooling as being of benefit to them probably in the form of less time and training needed for the employee to reach full productivity, even among those early leavers. This finding is somewhat inconsistent with the argument that the schools are failing to provide the basic skills training needed, at least from the point of view of employers. Our data suggests that, other things being equal, more schooling makes early leavers more employable."[16] (p.117)

From the government's perspective, the real issue in the present debates over education policy has nothing to do with a debate on "standards". The main thrust is an ideological program which attempts to redefine the nature of curricula and pedagogy so as to justify reduced expenditure. In this attempt the government has had considerable support from the media, educational bureaucrats and some academics.[17]

Implications for Schooling

One of the main consequences of the revised public policy for educational structures is that attention has again been diverted from critical analysis of the social effects which schooling produces. During the 1970's, the Australian Schools Commission and the Commission of Inquiry into Poverty in Australia, both produced substantial reports which emphasised the systematic social inequality to which schools contributed. In the Fifth Main Report, Dr Fitzgerald went so far as to say:

> "... people who are poor and disadvantaged are victims of a societal confidence trick. They have been encouraged to believe that a major goal of schooling is to increase equality while, in reality, schools reflect society's intention to maintain the present unequal distribution of status and power."[18]

The Report included many recommendations intended to change this situation. In general, these recommendations have been ignored, especially those that dealt with extra resource allocation to education, with school-based curriculum, and with flexibility in school structures.

In the past, youth who were disadvantaged in schools and early leavers took the more menial, less satisfying and more marginal jobs. Now that category of youth is unemployed. Youth unemployment is a burden which falls primarily on the same young people who have always been disadvantaged in Australian schools.

There is however little to suggest that the restructuring of schooling proposed in the Williams Report will achieve much for disadvantaged young people. It can be doubted as to whether it was ever the intention of the Committee of Inquiry or the politicians who established it, given the partial and selective way in which any recommendations relating to schools have been formulated. For example, the ERDC Study Group on National Assessment put forward recommendations which placed the primary emphasis on the individual school, as the focal point for assessment in monitoring the overall quality of education, while national assessment of basic skills would be a more limited and supplementary source of information.[19] The Williams Report strongly recommended the National Assessment Program. This emphasis on centralized assessment and the refusal to involve schools themselves in the planning and implementation of educational evaluation, raises the question of political control and threatens what independence the education sector does enjoy.

It is interesting to note how the language of the corporate sector has increasingly intruded into discussion of education. The primary justification for reduced funding has been the need for efficiency in the educational sector. Emphasis on basic skills rather than critical thought, and on vocational training rather than general education, indicate a redefinition of the purposes of schooling that parallels the developments in the economy, outlined earlier. There has been only limited discussion to date of the potential implications of new technology for education, but it is clear that dramatic developments will emerge before we are ready.

The real tasks which confront educators, and educational researchers, are to develop more vigorous and substantial analyses of the contexts within which educational policies are being developed. The issues at stake are clearly not just related to efficiency, but also to questions of cultural formation and decision-making processes. Failure to consider these issues may lead to a situation where educators become the functionaries of a new technocratic order. This paper has only outlined the sort of analysis that is required. We hope that others will respond to this challenge.

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SCHOOL TO WORK TRANSITION AMONG MIGRANT YOUTH IN AUSTRALIA, WITH SPECIAL REFERENCE TO THE TURKS AND LEBANESE

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Introduction

This paper draws on research from two studies. The first is a project on the education and employment of Turkish and Lebanese youth in Australia (Young, et al., 1980) conducted during 1979 and funded by the Commonwealth Department of Education. The second is an ongoing project on migrant youth employment, commencing in 1980 and funded by the Department of Immigration and Ethnic Affairs.

The research strategy in the Turkish and Lebanese project was to measure the school and work experience of Turkish and Lebanese youth in Australia, from a review of relevant background material, mainly census data, and a series of interview surveys. The Turks and Lebanese had been selected for special study because they constituted two groups of recent arrivals in Australia, they were the first major groups from the Middle East, and there had been some indication that these were the most severely disadvantaged in the transition from school to work.

One of the purposes of this paper is to highlight the heterogeneity of the teenage labour force, and to describe some of the complexities in the analysis of the school leaving and employment status of Australian-born, Greek, Italian, Lebanese and Turkish youth, with particular emphasis on the school and work experience among recently arrived Turks and Lebanese.

Migrant youth unemployment

The labour force surveys conducted by the Australian Brueau of Statistics provide a historical series from 1972 of unemployment rates of Australian-born and oversea-born 15-19 year olds. Since this date the rates have increased from 8.6 per cent for Australian-born and 9.0 per cent for oversea-born males to 14.3 per cent for Australian-born and 22.0 per cent for oversea-born males in 1979. Similar trends have occurred among females. The most detailed information on unemployment rates among individual birthplace groups is from the 1976 Census, and these values, for selected birthplaces, are shown within Table 1. The highest set of rates occur among youth from the two Middle Eastern countries, Lebanon (14.7 per cent for males) and Turkey (15.9 per cent for males). Rates among the Greek- and Italian-born youth are somewhat lower (12.6 and 8.8 per cent, respectively), and comparable to that of the Australian-born (11.0 per cent).

Age at leaving school has an influence on the level of unemployment, but this influence varies according to birthplace. Whereas unemployment levels decrease quite rapidly with each higher age at leaving school among the Australian-born, and among those born in the United Kingdom and New Zealand (with the exception of a slight increase at the oldest ages), the same pattern is not observed among the other birthplace groups.

Table 1 : Distribution of the 15-19 year old population according to whether persons are in the workforce or not, and whether they are at school or not. Males and females born in Australia, Greece, Italy, Lebanon and Turkey. 1976 Census.

School and work status	Birthplace				
	Australia	Greece	Italy	Lebanon	Turkey
	Percent				
Males aged 15-19 years					
In the workforce & not at school	53.8	41.6	51.4	42.6	50.1
In the workforce & at school	2.9	4.3	2.8	3.7	4.4
At school & not in the workforce	36.9	49.9	41.8	48.1	40.9
Not at school & not in the workforce	6.4	4.2	4.0	5.6	4.6
Sum	100.0	100.0	100.0	100.0	100.0
Proportion of school students who are in paid work	5.5	5.3	5.0	5.4	5.2
Proportion of school leavers who are not in the workforce	14.8	7.8	8.8	10.5	10.1
Unemployment rate	11.0	12.6	8.8	14.7	15.9
Labour force participation rate	56.5	45.5	53.6	46.7	55.7
Females aged 15-19 years					
In the workforce & not at school	47.9	38.8	50.2	35.0	51.6
In the workforce & at school	3.1	3.1	1.8	1.5	0.1
At school & not in the workforce	35.2	42.7	36.0	28.6	31.4
Not at school & not in the workforce	13.8	15.3	12.0	34.9	16.0
Sum	100.0	100.0	100.0	100.0	100.0
Proportion of school students who are in paid work	6.7	4.7	3.4	1.3	0.9
Proportion of school leavers who are not in the workforce	28.2	26.4	25.0	55.0	33.8
Unemployment rate	13.6	10.6	12.1	21.7	17.4
Labour force participation rate	50.4	41.1	51.0	36.5	53.8

Instead, the decline is far less steep, and for some, such as the Greek-born and Lebanese-born youth, there is actually an increase in the level of unemployment with each older age at leaving school.

Analysis of the distribution of the unemployed sector according to age at leaving school shows that the peak among the Australian-born is at the minimum legal school leaving age - 15 years. However, among the other birthplace groups there is a greater contribution from those who left school at the older ages, and among the Turks and Lebanese, there is also a relatively large proportion of unemployed who had little or no schooling. These differences are even more pronounced among the girls. These trends emphasise the diversity of the unemployed teenage population.

Even though they are the most often quoted indices of the situation of the teenage workforce, unemployment rates tell very little about the total experience of 15-19 year olds with regard to the transition from school to work. Two important reasons for this are discussed in this paper. Firstly, the 15-19 year old workforce represents only a portion of the total 15-19 year old group, since many are still at school or not in the workforce. Secondly, the unemployment rate does not indicate the relative well-being of the 15-19 year olds who are in the workforce with regard to the work they are doing. The following sections illustrate these complexities in terms of the experience of 15-19 year old youth born in Australia, Greece, Italy, Lebanon and Turkey.

Proportion who have left school

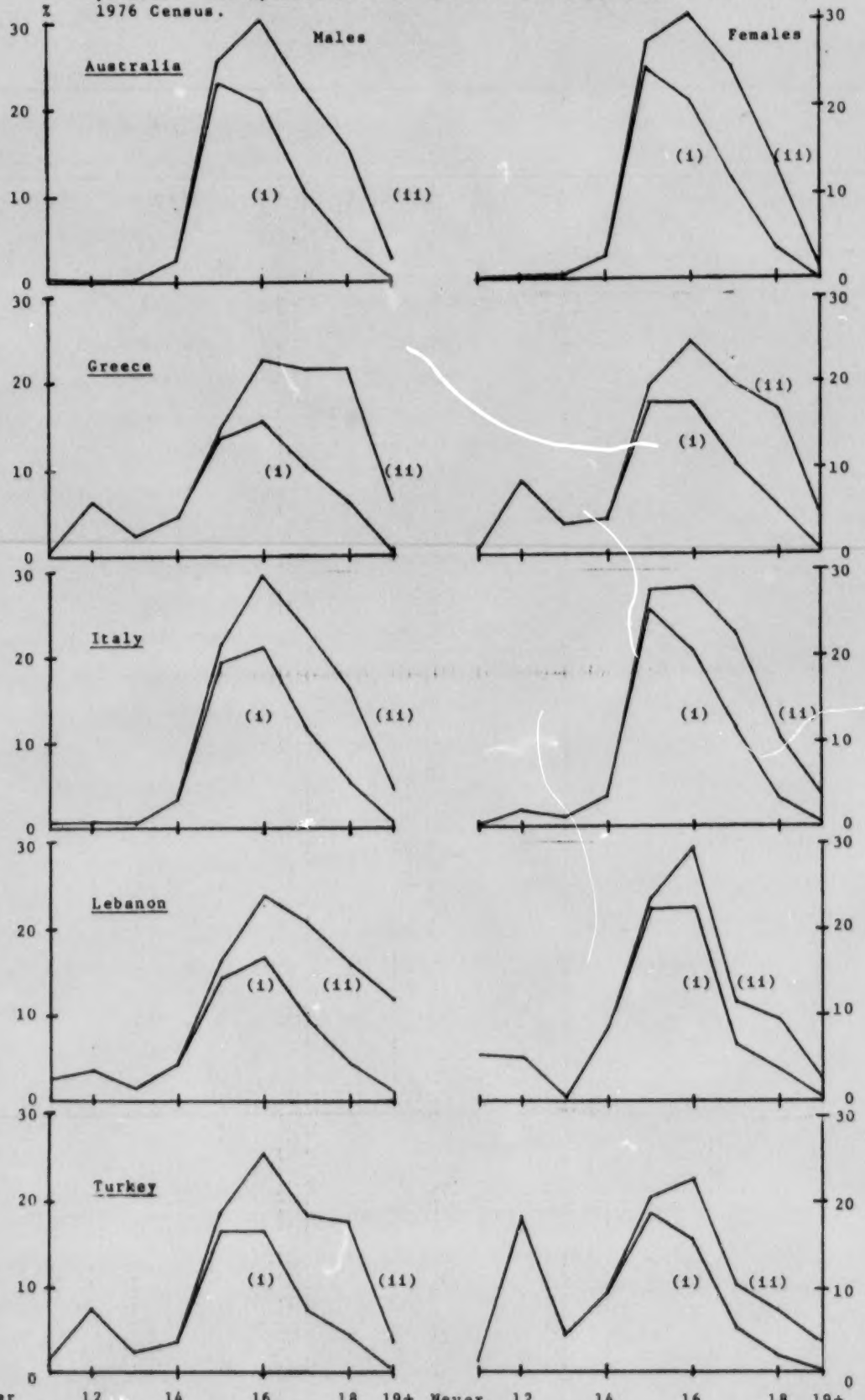
An important aspect of the teenage workforce linked with schooling, is that the current distribution of age at leaving school varies a great deal from the ultimate age distribution of leaving school of that same cohort. The inside curve of each set of graphs in Figure 1 represents the age pattern of leaving school among 15-19 year olds according to experience up to the 1976 Census. In contrast, the outside curve in each set of graphs represents an estimate of the ultimate pattern of age at leaving school of that cohort if its past experience were to continue. This distribution is derived by relating actual numbers who have left school at each age to the population at risk at each age, which, in turn, has been derived from the recorded census populations at single ages for each birthplace group. The gap between the two curves is therefore an indication of the extent that the current experience of the 15-19 year old cohort is a distortion of its ultimate experience with regard to age at leaving school. Thus a wide gap shows that a high proportion of the 15-19 year old cohort has stayed at school to the higher ages.

From the graphs it is again evident that each birthplace group has a different set of experience. Greek-born males are unique in having the largest gap between the two curves, indicating a higher school retention rate and also that the 15-19 year old labour force is least representative of the total cohort. The pattern of the Lebanese males, to some extent, approaches that of the Greek males, while the pattern of the Italian-born is closest to that of the Australian-born youth. Among females, again, the Italian-born are closest in experience to the Australian-born females, while the age structures of the Turkish and Lebanese girls emphasises their very young ages at leaving school.

Finally, it is useful to summarise the characteristics of the Australian-born and migrant 15-19 year old age group in terms of the proportions still at school, in the labour force and unemployed. Table 1 provides this information. First of all, the data for both males and females emphasise the fact that only one-third to one-half of the entire 15-19 year old group is in the workforce. Other points of interest from this table are the high proportion of Greek males, and to a lesser extent, Lebanese males, who are still at school. However, both these birthplace groups have relatively high unemployment rates, with the implication that a high school retention could be associated with a higher unemployment rate among those that have left school. On the other hand, the Turkish youth are unique in having both a low proportion at school and a high unemployment rate.

With regard to the females, the main features are the low proportions of Lebanese and Greek 15-19 year olds who are in the workforce. While in the case of the Greek girls this is largely explained by a higher proportion who are still at school, in the case of the Lebanese, the low workforce participation is associated with a low school participation and a high proportion who are neither at school nor in the workforce. The Turkish girls, and, to a lesser extent, the Italian girls, are characterized

Figure 1 : Proportional distribution of age at leaving school of males and females aged 15-19 years at 30 June 1976 according to (i) the situation at 30 June 1976, and (ii) the estimated ultimate experience of this cohort of persons. Birthplaces Australia, Greece, Italy, Lebanon and Turkey. 1976 Census.



by having a high proportion in the workforce and a low proportion at school. In addition, higher proportions of Australian-born girls who are still at school have part-time jobs compared with the other girls, and the proportions are extremely low among the Turkish and Lebanese girls at school.

Types of occupations of 15-19 year olds

The second area concerning the entry of teenagers to the labour force is with regard to the sort of jobs that the employed can find. The distribution of 15-19 year old males and females in the workforce according to occupation is provided in Table 2.

Table 2 : Occupational distribution of 15-19 year old males and females born in Australia, Greece, Italy, Lebanon and Turkey. 1976 Census. (Percentages).

Occupation	Birthplace				
	Australia*	Greece	Italy	Lebanon	Turkey
			Males		
Professional, technical	1.9	0.9	1.0	-	-
Administrative, executive	0.3	1.2	0.6	0.5	-
Clerical	10.0	5.2	7.7	4.4	3.0
Sales	7.7	13.0	9.0	6.6	1.0
Farmers, fishermen etc., miners, quarrymen	9.4	1.0	2.0	0.5	-
Transport & communication	3.1	1.9	1.5	3.4	3.0
Tradesmen, production-process, labourers	57.1	65.5	67.8	63.0	75.9
Service, sport & recreation	3.6	5.6	4.6	7.4	2.5
Armed services	2.7	-	0.5	-	-
Not stated	4.2	5.7	5.3	14.2	14.6
Total	100.0	100.0	100.0	100.0	100.0
			Females		
Professional, technical	10.0	1.1	1.5	-	1.2
Administrative, executive	0.2	-	0.2	-	-
Clerical	42.4	32.8	40.8	19.9	3.5
Sales	21.1	17.1	20.0	12.9	-
Farmers, fishermen etc.	1.5	0.2	1.7	-	2.4
Transport & communication	1.3	-	1.1	-	-
Tradesmen, production-process, labourers	7.2	30.6	18.4	46.2	77.4
Service, sport & recreation	10.7	9.8	9.7	9.2	2.4
Armed services	0.4	-	-	-	-
Not stated	5.2	8.4	6.6	11.8	13.1
Total	100.0	100.0	100.0	100.0	100.0

* Australian-born with Australian-born father.

Among 15-19 year old males, higher proportions of Australian-born are in clerical occupations, farming and the armed services in comparison with the migrant groups. In contrast, higher proportions of the migrant youth are in the category, tradesmen, production-process workers and labourers, with a peak of 76 per cent among the Turkish youth (compared with 57 per cent for the Australian-born and 63-68 per cent for the other birthplace groups).

Larger differences exist between the different birthplace groups of 15-19 year old girls. High proportions of the Australian-born are in the professional group, and their high concentration in clerical and sales is almost matched by the Italian-born girls, while the Greek-born girls are only slightly less strongly represented in these two categories. However, very few Lebanese girls, and even fewer Turkish girls are in the clerical and sales groups. As with the boys, the greatest difference occurs in relation to the category, tradesman, production-process worker and labourer. Only 7

per cent of the Australian-born girls are in this group, compared with 18 per cent of Italian, 31 per cent of Greek, 46 per cent of Lebanese and a peak of 77 per cent of Turkish girls. The high concentration of Turkish males and females in these occupations is also characterised by a very high proportion in the production-process and labouring component rather than in the more skilled trades, thus highlighting their disadvantaged situation in the labour force.

The relationship between the type of employment that was accessible and the level of unemployment was explored further in the interview surveys with the Turks and Lebanese. During the course of this study it became increasingly obvious that it was important to consider the teenage workforce according to the three categories, having a "good" job or a "bad" job, or being unemployed. "Bad" jobs comprised factory work, including packing, labouring and cleaning jobs, while "good" jobs included all other jobs, including unskilled jobs that were not dirty, dangerous, or excessively monotonous, and the more desirable jobs such as clerical, sales, apprenticeships, trades, etc. For many of the 15-19 year old school leavers, particularly the Turks, the choice seemed to be between unemployment or a "bad" job.

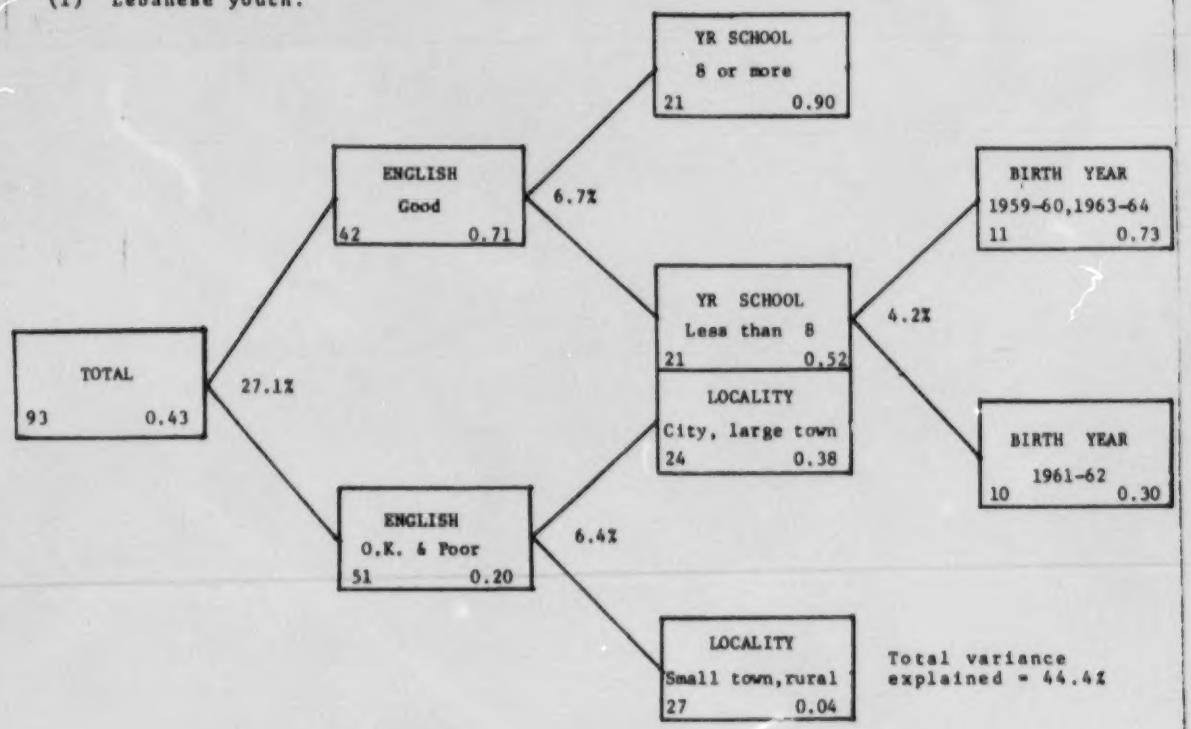
Naturally, intervening factors, such as age at arrival in Australia, year of arrival, number of years at school in Australia, age at leaving school, knowledge of English, locality of upbringing, and source of information about jobs had an influence on a youth's transition into the workforce. However, it was found that there was a stronger association between these factors and having a "good" job than between these factors and being employed (i.e. having any job). This is because there is less competition for the worst factory and labouring jobs, and even youth with no English and no skills could obtain these.

The influence of language, schooling and other factors on the probability of having a "good" job or being employed among the Turkish and Lebanese youth is illustrated in Figure 2 and Table 3. This information has been derived from the application of the Automatic Interaction Detection (AID) Program (Sonquist and Morgan; 1964), to the Turkish and Lebanese Survey data. The AID Program performs a series of steps, and at each step it examines the ratios of the between sums of squares (BSS) in relation to each governing variable (such as knowledge of English, years of schooling) and the dependent variable (such as the proportion with a "good" job, or the proportion who are employed) to the total sums of squares (TSS). The program then splits the sample according to the governing variable with the largest ratio of BSS to TSS, and then performs the same procedure on each of the two resultant subgroups. This continues until certain predetermined limits are reached.

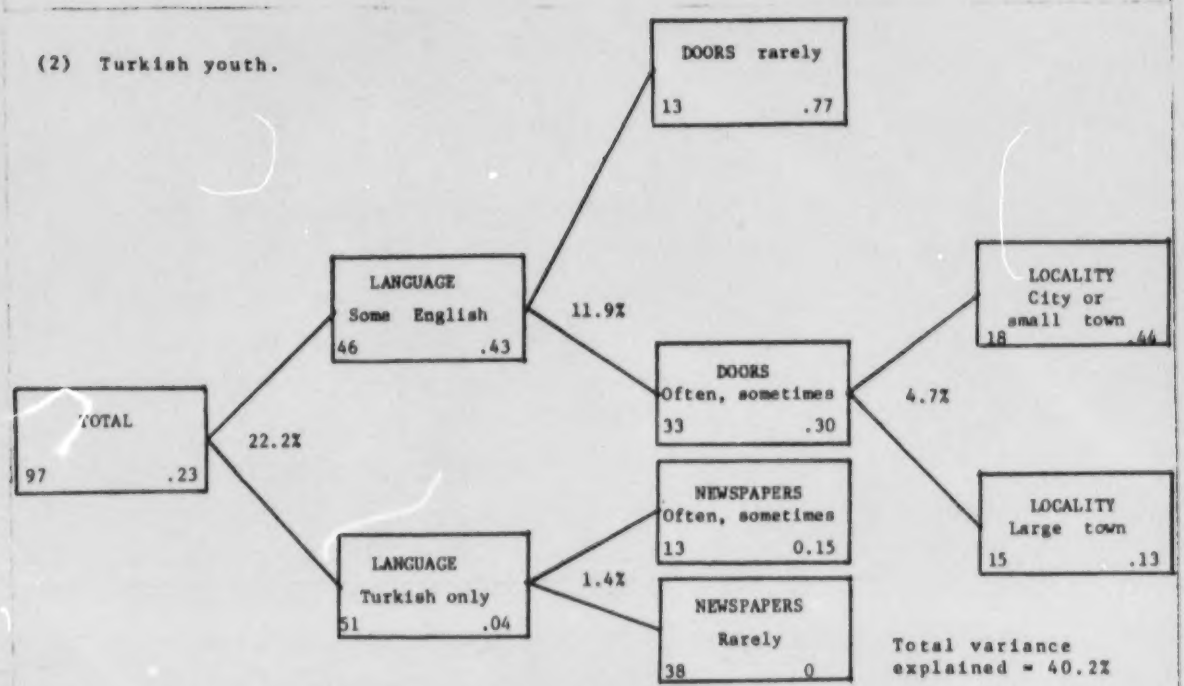
The values of BSS/TSS determined in the first step of the program for the full range of governing variables in relation to having a "good" job or being employed are given in Table 3. This illustrates the greater influence of these factors on the probability of having a "good" job. The data also suggest that these factors exert a greater influence on the experience of Lebanese than among the Turkish youth, thus further emphasising the heterogeneity of the teenage labour force in relation to

Figure 2 : AID Analysis. Main factors related to the proportion of Lebanese and Turkish youth with a "good" job. Turkish and Lebanese Study.

(1) Lebanese youth.



(2) Turkish youth.



See Table 2 for the meaning of the captions.

Table 3: Influence of main factors on the probability of being employed or gaining a "good" job among Turkish and Lebanese youth. Ratios of BSS/TSS. Turkish and Lebanese Study.

Factor	Lebanese		Turks	
	Employed	Good job	Employed	Good job
	Ratio of BSS/TSS [a]			
Country of birth	0.05	0.18	0.01	0.08
Religion	0.04	0.08	-	-
Locality of upbringing	0.00	0.12	0.04	0.06
Age at arrival	0.07	0.20	0.03	0.04
Year of arrival	0.09	0.24	0.02	0.04
Knowledge of English	0.09	0.27	0.00	0.10
Language at home	0.09	0.13	0.01	0.22
Years of school in Australia	0.07	0.24	0.01	0.09
Level of school in Australia	0.03	0.17	0.03	0.18
Post-school training	0.06	0.16	0.02	0.15
Total sums of squares	22.3	22.8	19.5	17.0

[a] BSS = Between sums of squares. TSS = Total sums of squares. Derived from the first stage of the Osiris Automatic Interaction Detection (AID) Programme. See J.A. Sonquist and J.N. Morgan (1964) The Detection of Interaction Effects. Institute for Social Research, University of Michigan, Ann Arbor, Michigan.

NOTES TO FIGURE 2

Abbreviation	Meaning
BIRTH YEAR	Year of birth.
DOORS	Knocking on doors as a means of finding a job.
ENGLISH	Ability to speak English.
LANGUAGE	Language spoken at home.
LOCALITY	Locality of upbringing.
NEWSPAPERS	Frequency of consulting newspapers for jobs.
YR SCHOOL	Years of schooling in Australia.

birthplace.

The outcome of the full AID procedure for Turkish and Lebanese youth when the dependent variable is the proportion with a "good" job is given in Figure 2. Approximately one-half of the total variance is explained by the governing variables listed. (However, when the dependent variable is the proportion employed, only around one-third of the variance can be explained by the full range of factors). For both the Turks and the Lebanese, by far the most important factor with regard to the probability of gaining a "good" job is the knowledge and use of English; this accounts for more than one-half of the explained variance. Years of schooling is also important, and so is the source of information about jobs and the duration of exposure to city living as opposed to a rural or small town community.

Further characteristics of the Turks and Lebanese

Other studies have drawn attention to the age at arrival in Australia as an important factor in the ease of adjustment to an Australian school, and this was also found to be the general rule from the life history data collected in the Turkish and Lebanese study. Beyond about age 10 years, young people experience progressively more problems in settling into an Australian school, with its different curriculum, different

teaching methods and different school population. Not being able to understand English causes tremendous difficulties in learning and in general communication. Turkish youth, particularly, often became discouraged at their slow rate of acquiring English. With pressure to help the family out of the difficult financial situation usually associated with migration, some decide to leave an unhappy existence at school and take an unskilled job in the workforce. The odd situation is that English is usually not needed in an unskilled job because of the nature of the work and the presence of fellow countrymen in the factory, but it really is needed to be able to cope adequately at school. For some, work is initially perceived as the more attractive option; later, of course, comes the realisation that without English the only prospect is a series of unskilled jobs or unemployment.

Lack of communication and misunderstanding often characterised the relationship between the school and the parents of newly arrived migrant children. Language difficulties prevented adequate discussions between parents and teachers, which might have helped to alleviate some of the parents' worry about the subjects being taught, the lack of discipline (in contrast to schools in Turkey and Lebanon), the value in the child's staying at school, and the decision about what career or employment the child should follow. From the child's point of view the teaching of English, mathematics and work-orientated skills, imparting knowledge about Australian society and offering sensitive, individual careers advice were some areas where the schools were perceived to be lacking.

Barriers to the full education of the Turkish and Lebanese girls relate to the protected position of women and girls in Middle Eastern communities, and the tradition that schooling is of less value for girls or that girls are needed to help in the home. In the interview survey there was concern expressed by parents about sending their daughters to school in Australia because of the freedom allowed to girls here. Some would prefer to take their daughters away from the informal atmosphere of the schools to work in a closely-supervised factory.

Many of the problems of recently arrived Lebanese youth were as a result of the tense situation in Lebanon. Many had had their schooling disrupted by the continuing war, while others had been victims of the unemployment situation which also exists there. However, the Lebanese group is extremely heterogeous, and there is great variation between Lebanese youths who came to Australia when they were very young and the recently arrived refugee teenage youths from Lebanon.

The educational needs of newly arrived migrant youth cannot be met entirely by the schools because some do not go through the Australian school system or spend only a very short time at an Australian school. Therefore, there also needs to be provision of training in basic skills for youth who are in the workforce or who are unemployed. The first priority in this respect is the teaching of English in unemployment centres and at work, preferably under some system whereby employers are compensated for time lost from work and/or the cost of providing adequate English classes. The provision of English classes during working hours would also help solve another problem - the situation where a youth has obtained skills in Turkey or Lebanon, but is unable to use

these without a knowledge of English, and, through financial pressure is forced to work long hours in an unskilled job with little opportunity of learning English.

Summary

An analysis of the proportions still at school, the distribution of the work-force according to age at leaving school, the level of unemployment, and the occupational distribution of those who are employed highlights the diversity between various birth-place groups in Australia with regard to the transition from school to work. In particular, it emphasises the special disadvantages of some of the Turkish and Lebanese youth, and the very great differences in experience between the teenage girls and the teenage boys in these two communities.

Within a given birthplace group there is even further diversity particularly with regard to age of arrival and year of arrival in Australia, which in turn are linked with one of the most important determinants of success - knowledge of English. The primary implication for educational policy is the intensification of the teaching of English at school and beyond school.

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A REPORT ON CASE STUDIES OF ALIENATION FROM SCHOOL

INTRODUCTION

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Case study research in education involves a researcher spending a substantial period of time with the persons and educational setting where the phenomena of interest are expected or alleged to occur. Such an intensive investment of time can be expected to provide at least two outcomes. The first is a high degree of conviction or assurance about the existence or not of the phenomena, and the second is a descriptive account of what the phenomena means in the setting that has been observed.

The main part of this paper is made up of three accounts that are drawn from case studies of the phenomenon of alienation from schooling. The settings were co-educational high schools in the states of W.A., S.A., and Victoria. The accounts are not intended to be summaries of the reports on these three studies. Indeed, the studies were still in progress when the accounts were written and in none of the cases had the procedures for negotiating the release of the rich case reports been completed with the schools. Rather, the accounts are attempts to share some of the issues that relate to the substantive theme in these three schools.

Each case study investigator has also tried in his account to convey something of what this approach can reveal about such a phenomena. Such research outcomes are the product of these investigators' interaction with their particular settings. Ultimately, their case reports will need to be seen or read in association with a sense of this interaction. In presenting these accounts at A.A.R.E. they will be able to respond to such enquiries.

In the remainder of this introduction to the three accounts, I wish to provide some sense of one substantive issue acquired from a site visit to one of the schools and from extended interviews with the three investigators after they had been on site for several weeks.

First of all though, it is important to remind ourselves that high school students and their teachers don't usually use the word "alienation". It is a conceptual term coined by educational observers and others who are outside classrooms and schools to simplify, aggregate and label a number of learning experiences of teachers and their students as the years of secondary schooling move towards and through the compulsory school leaving age. It does not belong exclusively to those students who leave at this stage or shortly afterwards, and it does not correlate very well, as a set of experiences with the school's (or the system's) criteria for a student's success.

> *A class of Year 10 students were studying the topic of Technological Society. Their work book involved them, over several periods, in a consideration of cities and land use in the U.S.A.. Their teacher was supportive, clear and patient in his instructions, in answering questions and in leading discussion. The class atmosphere was relaxed and rather noisy as students slowly worked away, assisting each other where they could. I asked one small group:*
> *"Are you interested in America?"*
> *"No, not particularly."*
> *"Have you done this for Australia?"*

"No."

"Is Australia a technological society?"

"I don't know."

Other students in this social studies class accepted this bit of their curriculum as something to learn with eagerness, others learnt it without enthusiasm. Some others went through its stages more or less, but with little learning while a final group allowed most of its offerings of learning to pass them by.

For this class of students, the same range of experiences of the taught curriculum was repeated as they moved from subject to subject, although the styles of their teachers varied greatly and the students in each group of responses varied a little.

In science, the precision of the curriculum's intended outcomes confused many rather than clarifying and strengthening that subject's contribution to reality.

> *After a unit on radiation, the students were asked in a test by their sympathetic teacher,*
> *"What are three types of radiation that can damage body tissue?"*
> *When one of the students said "Sunlight" (rather than X, gamma and U.V. as required) the teacher replied, "No, that's wrong, because sunlight isn't pure. It's like wanting to choose all the alternatives in a multiple choice question."*

Most of the students were left, once again, with the sense that science was the mysterious "right" alternative out of the four multiple choices, instead of being knowledge and knowing that related to the experience of sunburn they all know about.

For a not insignificant group of these students, it was as if the range of curricular variations that were open to their teachers could make a difference to the pleasure of being at school. However, these variations would not affect the students' sense of its fundamental relevance. Long ago in the school life of these students, its curriculum and the learning of it had ceased to be "relevant" to them as individuals. Rather they had learnt that the school's curriculum was a set of experiences in which they would be relative and persistent failures. Mid-secondary school was not better or worse than the years that proceeded it.

It is all too easy to ascribe such vignettes on student outcomes to poor teaching or inadequate curriculum materials. However, on most criteria it is unrealistic to lay much store on either of these "explanations". Certainly another teacher with this class would have related to them differently and may have engaged them differently with these or with other curriculum materials. The evidence of these case studies from the students themselves raise doubts about the outcomes of such changes. All the teachers recognise the relevance of the curriculum as an issue, but what this meant and how to deal with it evoked a great variety of responses.

Some acknowledged it and proceeded to ignore it, others tried to change the classroom methods or content or both. One or two saw it as more fundamental but beyond their scope of action.

The relevance of curriculum for today's secondary students is an issue that these case studies will report and hopefully will illuminate.

THE PLYMPTON EXPERIENCE (A SOUTH AUSTRALIAN CASE STUDY)

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INTRODUCTION

To a greater or lesser degree every school faces the problem of coping with students who are dissatisfied with, and eventually reject, its policies and programs. At the present time, in response to a perceived increase in the level of dissatisfaction with conventional high school programs, an increasing number of high schools are engaged in the process of developing "alternative" structures and programs. The case study in South Australia focusses on the problems of school "rejection" and "alienation" as they exist in what was formerly an academic high school.

The case study sketches briefly the ways in which the school has adapted to changes in State educational policy, school intake, and external circumstances, notably youth unemployment. In particular, it is the tale of the development and implementation of "alternative programs" within the bounded system of an established school. It is a tale, moreover, which seeks to understand phenomena of "alienation" as they manifest themselves in the school: the ways in which teachers and pupils define the problem, the genesis and implementation of changes in policy and programs, the constraints and particularities of circumstance in the school, and the successes and limitations of the school's efforts to cope with the problem - as perceived by teachers and pupils within the school.

THE SCHOOL

Tucked behind the light industrial zone of the central western region of Adelaide are pockets of the well-kept houses of the lower-middle class families which make up much of the population of the city. Plympton High school is located in such an area: the street in which it is located is well established and tree lined. The school is set in rose-gardens and there is an impressive, multi-purpose school hall in front. Driving through the gates, one faces an office block and two solid two-storey classroom blocks erected in the early 1960s. Behind these buildings are well-equipped resource and specialist centres. But behind these again, the temporary wooden classrooms brought to the site to cater for the influx of students in the early 1970s stand in sharp contrast.

Weaving one's way through the maze of buildings one can visualize the joys and tribulations of the past twenty years through which so many of our secondary schools have gone. The solid permanent buildings reflect the period up to 1972 when Plympton was a traditional academic high school. The school retains many of the traditions of its past. The large gold-lettered board in the front foyer still serves to honour academic success.

In the Handbook of South Australian government schools, the school describes its policies as "conservative". For example, homework and regular assessments are still seen to be important aspects of school life; classrooms and the timetable are organized along conventional lines. The school has a prefect system and some attempt is made to maintain the wearing of uniforms. About 30% of the Grade 8 intake sit for the matriculation examination at the end of year 12, while a further 12% take the Secondary Certificate course at that stage.

The change in educational policy in South Australia in 1972 was characterised by the introduction at Plympton of metalwork, plastics and woodwork, home economics, music and drama, and by the increasing numbers of students with home backgrounds, abilities, values and aspirations at variance with those of students in a matriculation stream. Moreover, the proportion of students with a non-English background has increased; 328 of the 1050 students now at the school are migrants or the children of migrants. As a consequence, there have been changes not only in the programs of the school but in its very fabric. As one teacher put it:

> *"Plympton's status as an academic high school is being eroded by the upgrading of former technical high schools into regular high schools, so that the better students are now more evenly spread among institutions. Also the larger percentage of Southern European migrants with their lack of intellectual values has affected the school."*

ALIENATION IN THE SCHOOL - A PROBLEM?

At Plympton, as in many high schools, there has been widespread concern about those students who do not appear to "fit" the programs currently offered by the school. Failure to cope with academic courses seems to be compounded by inter-personal problems, resulting in what teachers at the school see to be:

> *"classes of reluctant, even hostile, learners."*
>
> *"kids who are turned off school and those who are floundering because of reading difficulty or breakdown in families."*
>
> *"kids who are not remotely interested in school and completely uncontrollable."*

In discussions of the problems of young people who are "turned off" school, terms like "alienation" are often used. For example, Wynne (1978) argues that we are witnessing increasing violence, vandalism and discipline problems in schools as a consequence of increasing alienation amongst young people in our society. Like Wynne, teachers at Plympton tend to focus on the behavioural manifestations of "alienation" and to describe individuals who are maladjusted as "alienated". In most cases, the blame is attributed by teachers to the child and his or her family; and by the children themselves to the teachers and the school. Such usages of the term "alienation" have taken us far from the concept which the young Hegelian Marx found so attractive in his early writings. Becker (1967) reminds us of the disillusionment with the concept of the historical/materialist Marx, and the need to search for the substance beyond the spirit of the original construct.

Despite popular beliefs that young people find school repressive and over-rigorous and hence express feelings of normlessness, powerlessness and self-estrangement, the majority of the Plympton students interviewed showed little evidence of deep-seated alienation: most were neither wildly enthusiastic about, nor bitterly opposed to, the policies and programs of the school. One of the most immediately available generalisations from interviews with 120 students ranging across Grades 8 to 11 concerns their uncritical acceptance of the necessity of coming to school and of the conditions associated with schooling. Most claim that they come "to get a good education", although in general they were unable to further define what that might mean in specific terms. For almost all, the ultimate purpose turned out to be that of "getting a good job".

This instrumental view of education was shared by students in all grades and tracks:

"Well if you want to get a job, you have to learn things and know what sort of things it's about."

Few students saw any intrinsic value in what the school has to offer. When asked what the school had done personally for them, most answered "nothing much". There was, moreover, a tendency to avoid becoming too attached to the values of the school.

"Because you turn into one of them, if you like school too much ... one of those square people that go around in little glasses and sit around reading books."

Although not all of the students would come to school if it were not compulsory, many took the view that school is a more desirable option than staying at home or being unemployed:

"It's boring just staying at home."
"I'd rather have an education than just sit around."
"Because if we didn't go to school there'd be a lot of dropouts and a lot of kids on the street."

The most vehement expressions of school alienation tended to come from students who are unsuccessful, "picked on" by teachers and other students, and who desperately want to leave to enter the workforce, but by law or external circumstances cannot. Jody, a Greek boy in one of the "Greek" classes was a case in point:

"I want to leave but my parents won't let me. I just don't like it. You know they (teachers) always pick on you and that's why I hate school. You do get bad marks when you hate school. Because I've got a really bad mark, I hate it."

But the majority of students at Plympton accept the inevitability of spending years at school to such a degree that they felt unable to visualise major changes. In the words of one girl: *"school is school."* The changes they do suggest centre around issues like the wearing of uniforms, the building of a swimming pool, and the provision of lunch time activities.

A fairly universal acceptance of the inevitability of coming to school does not imply satisfaction with school. Most of those interviewed felt that school worked well for and was liked by 'the brainy kids' - as most of the interviewees were drawn from middle stream classes it is perhaps important to note that they were not talking about themselves, or even about kids in their own class. They did not seem to consider themselves inferior necessarily, nor lacking in ability, but they did have a clear understanding that there were some in the school who were more intellectually gifted than themselves. These interviewees often mentioned 'other kids' as one of the good things about school - one wonders whether their response would be found equally often with the top stream students. Nevertheless, socialization seems to present some problems for students at Plympton. The group ethic appears to be strong, whether simply as a reflection of the adolescent need of the peer group, or whether it is made more intense by the size of the school in which the individual is lost unless the group ensures survival, or because the school puts kids into groups and calls them classes. As students progressed through the school there seemed to be an increasing lack of flexibility about their socializing practices - some at Year 10 were still with their group from primary school. In general, it seemed that friendship groups were established in Year 8 and

did not change very much afterwards. Many of those interviewed knew of students who were left out or didn't belong, but in general the students felt that nothing much could be done about this - in particular, they did not see teachers as facilitators of socialization. Attitudes to school were commonly reported as influenced by 'what my friends think'. Changing one's group of friends was not easily achieved and so presumably any attempt at attitude change would have to be directed at the group rather than the individual.

'Nothing to do at lunchtime' was a recurring complaint - many of the students interviewed chose to go home for lunch as a way of coping, with the compensation at least in the words of one boy that 'you get a good lunch'. Apparently at lunchtime the Plympton students are left to sit about the schoolyard in groups and talk, and many would appreciate the option of more structured activities such as sport, disco dancing, records, etc. Some of the students seemed a little hesitant to admit they wanted more organization in the lunch hour, as though to admit you weren't coping might indicate a lack of sophistication and social ease - the Year 8's were more vocal on this score than were the older students, but 'boring lunchtimes' were encountered at each level. Some of the teachers too were aware of this student complaint, but felt their responsibility did not extend to the provision of lunch hour activities. It seems that one potential result of such a program were it offered, would be increased social interaction thereby facilitating entry to or movement between different groups. As things stand, it seems this is difficult for individual students to achieve - it may be that some of the reported warring between the Greek students and the Australians is a fairly primitive effort at social interaction.

Lack of relevance in the subjects studied was a cause of dissatisfaction for some students. Perhaps this may be an effect of educators' striving for increasingly 'relevant' curricula in recent years - and increased teacher autonomy with respect to designing such curricula. In the words of one girl who was particularly strong on this point "we should only learn what we need" - a comment parents are increasingly making, as one of the teachers reminded me on a later occassion. Unfortunately, when students were asked 'what do you need?' the answers centred around fairly vague notions of survival which, although the students found such a notion attractive, had little to do with much beyond consumer mathematics. Those who had made up their minds about jobs were on the whole more accepting of the school curricula than those who had not. It was the latter group who were in the majority and who were also more prone to call for relevant subjects. The school and the teachers are therefore in the dilemma of coping with demands for relevance when the outcomes to which the subjects must be relevant are unknown. This debate, hinging as it does on the ultimate aims of education as understood by those involved in the process, would appear to be crucial in a consideration of student satisfaction - dissatisfaction and will be referred to again later in the discussion of teacher attitudes and teaching styles.

The curriculum was seen to contribute to student dissatisfaction in other ways also. Several students commented on finding the work in Year 10 considerably harder than in previous years. When this point was raised with one of the teachers involved at this level, they agreed with the notion of an unequal jump in standards between Year 9 and 10, and especially in the science and maths subjects. Students at Plympton are required to pass in science and maths at Year 10 in order to be allowed to continue in these subjects in the following year (not all subjects have this requirement). The Year 10 syllabi are apparently written and determined by teachers involved in the senior maths, physics and chemistry in the school and it is therefore in their interest to cull the less able students from the group, while at the same time, ensuring that the better ones have been given a good academic basis from which to work. Such a

program is inappropriate for those who do not continue in these subjects and comes as an unpleasant shock to many of the middle stream students who 'have always liked science until this year' at Year 10.

Maths and science were cited at all levels as the 'hard' subjects, subjects with which many students find difficulty. Teachers of maths, and science were often criticised for not explaining properly, not being able to understand the students problem. And yet these are the subjects most often named as necessary qualifications for jobs. The students resent the need for qualifications when they can't see the relevance of the subject matter: they reject as dishonest the idea of the usefulness of a subject simply as a sorting device. They had all heard about the problem of unemployment, but this did not necessarily make them more keen on their schoolwork, as they had all heard of 'university graduates on the dole' - a story they used to illustrate the uselessness of higher qualifications and hard work. In general there was a strong sense of unreality about the world outside the school, and the fact that many had no clear idea about preferred occupation, much less likely one. This attitude is in direct contrast with that of the students involved in the work experience program, many of whom had experienced life outside the school and seemed to value their course highly as a result, and exhibited a high level of satisfaction with the 11th (and final for the most part) year at school.

The greatest consensus was obtained from the interviewees in answer to the question 'What turns kids off school.' The answer in nearly every case was 'the teachers' - at times varied as in 'teachers picking on you' or 'cross teachers'. Because they are exposed to several different teachers during the course of each day, most high school students are aware of differences in teaching styles as well as in teacher personalities. Thus they talk of teachers' "ways", and distinguish between the teacher as a person and the teacher in front of the class. The interviewees were universally in favour of the teacher in front of the class. The interviewees were universally in favour of the teacher being a warm understanding person. Students at Plympton felt that to be able to teach meant to be an approachable sort of person, one whom students could go to for explanations without fear of embarrassment.

From the interviews it seemed that some teachers had given up on some of these middle to lower ranked classes, a fact of life resented by the pupils most affected: "Some teachers though come up to you and say 'You're not getting any help from me'. They don't care nothing about if we learn. They get paid. They just come to school and write a whole bunch of stuff on the board and watch us do it. But they get paid."

Some teachers also deliberately used negative group pressure to preclude questions. It is apparently considerably worse to be made to appear foolish in front of your mates (even though they don't understand either) than to sit tight and fail. In fact, the students tend to think of the teacher rather than the subject 'We've got Mr X next'; they readily admit their attitude to a subject depends on their relationship with the teacher. Once again one wonders whether this would be as important for the top stream students. The students often criticised the teachers' lack of flexibility - once the teacher had formed an impression of a pupil it was going to be very difficult to change. They resented the teachers' labelling, whether it was of themselves or of their classmates, and wanted to be seen by the teachers as individuals. The tension between wanting to emerge as an individual and yet needing the support of the group is a continuing theme during the interviews. Related to this is the use of "boring" - a blanket term used very often by the kids to describe situations in which they were not personally involved. A lesson was boring if the content was too easy, or too difficult, or if the teacher talked on too long or if there was no challenge or change of activity. Obviously teacher sensitivity and willingness to vary teaching

styles to suit different tastes is important here. It seems that high school students may appreciate changes of pace and variety of approaches just as much as younger children. The students interviewed were aware and appreciative of different teachers' efforts to create interest in the subject matter - and critical of those who did not try to do this. In this way the teacher who becomes personally involved in the presentation of subject matter seems to elicit a similar response from the class. The students are more readily cast into the role of learners when their interest is aroused. In contrast to this, many of the kids were very critical of a teacher whose habitual method was to write notes on the board for them to copy - no effort was made to interest or explain. In this case the role directions coming from the teacher to the students are not so clear - they may copy the notes, or they may engage in a variety of other activities as long as they are not particularly disruptive. Most of them did in fact tune out as they said they did not understand the notes, found asking questions useless and were sure to fail anyway. They felt that this particular teacher regarded them as "too dumb to bother about". In this case their understanding of the teacher's attitude precluded their fulfilling their official role as 'learners' and their consequent frustration and lack of satisfaction in this class was evidenced in their extremely negative sentiments toward the particular teacher.

THE MOVE TO ALTERNATIVE PROGRAMS: YEAR EIGHT

Because the teachers were readily acknowledged by the students to be the most important factor in contributing to or detracting from their satisfaction with school, it was though worthwhile to follow up the student interviews with talks with teachers. The students from Year 9 and 10 had broadly divided teachers into those who appeared as warm encouraging people and those for whom the subject was the beginning and end of their involvement with the class. This type of broad distinction was immediately obvious in conversation with staff members. Plympton, it appears, used to be a strictly academic high school with a local reputation for good results. With the upgrading of the local technical schools and possibly some zoning changes, the proportion of bright academically oriented kids entering the school in recent years had diminished. Efforts have been made by some people within the school to adjust to the changed enrolment, but the issues involved are hotly debated and have created serious divisions within the staff.

In particular the existence - and proposed expansion of what is known as the 'alternative' program is a point at issue. At the beginning of 1979 two classes at the Year 8 level were comprised of individuals carefully selected from the primary schools as currently not coping very well with school, and given special treatment at Plympton in the "Mezzanine" classes, i.e., in-between classes created for students with transition problems. Their adjustment to high school was made easier by the fact that they had one teacher for almost all of their academic subjects, a teacher who knew them individually very well and could vary the timetable to suit the need. However, a few of these Year 8s at least made real progress and were able to rejoin mainstream classes in Year 9 in 1980. Almost one half of the students entering Year 8 in 1980 are in alternate classes. Teachers who are involved with the program (though not all) tend to find the style of teaching involved very challenging and rewarding. They believe in what they are doing and are consequently critical of more traditional teaching which they see as de-humanising, as creating failures, as lacking in challenge. This attitude not surprisingly breeds

resentment among the traditional teachers who argue strongly against what they claim is the lowering of standards. The position is further complicated by the fact that the school is at a time of declining enrolments. As a result several teachers have this year been moved to other schools, and this may cause the traditional teachers to resent losing some of their head-count to the alternate stream. On the other hand, one of the Year 8 alternate teachers who will not be continuing with the program next year felt very bitter about the lack of help she had received from senior subject teachers when, as she said, she had removed a lot of problems for them by running the alternate course.

Although the controversy would seem to be based on diverging beliefs concerning the ultimate aims of education, the teachers were fairly vague on this score (as had the students been earlier) and were much more ready to discuss particular details of the situation at hand. There did appear to be distinct differences in staff members' perception of the role of the teacher however. Only the work experience (Year 11) teacher saw his role as preparing students for the workforce (which, he was careful to point out, did not mean assuring them jobs). Academic teachers tended to see their role as two-fold:

(a) the imparting of knowledge of a subject and field-appropriate discipline to their students; and

(b) the sorting of students, by some form of assessment, formal or informal, internal or external, into or out of further education.

'Alternate' program teachers are more inclined to opt for individual fulfilment as their main aim and see their role as an effort to bring this about. In the words of one alternate teacher what this type of teaching means is "meeting each student where he is and taking it from there". Preparation for life is the emphasis rather than preparation for the work force. They see remedial classes as having failed possibly because the labelling tends to elicit negative attitudes from the staff and other students. Thus the teachers try to exert positive discrimination in the alternate program - to be included in the 11th Year you have to apply and are selected on the indications from previous teachers that you are prepared to work. 'Alternate' classes tend to have a strong class identity, which does promote satisfaction. At this stage it seems that the consciousness raising associated with the setting up of the alternate program has had a beneficial effect as regards students satisfaction. Perhaps if the rationale for the mainstream educational program was similarly under overt scrutiny an equally beneficial effect would follow. It is noteworthy here that parents are consulted before their child is consigned to an laternate program - thus the parents are made aware of what the school is doing and their support is enlisted as participants with the school in the individual's educational development.

THE COMPLEXITY OF ISSUES IN THE SCHOOL

One proposal concerning the maintenance of educational standards which was put forward by a teacher connected with the alternate program is worth noting here. He was highly critical of the automatic promotion of students from one year to the next, and would rather see such promotion contingent upon the student having reached a certain acceptable standard at each level. He felt that currently students are being cheated of the satisfaction in achievement which he saw as particularly important for those of only moderate intellectual ability.

THE WESTERN AUSTRALIAN CASE STUDY

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INTRODUCTION

Beyond the facts that the case-study school is a large senior high in an industrial area of Perth which was developed in the mid-1950's, and that the school is still housed in its original timber frame buildings placed in the grid pattern then prevalent, details of the school are not relevant to this paper.

I have classified the emerging issues into three main foci: the pupils, the teachers and the curriculum. These foci are not separate categories, but interacting and overlapping areas of concern. Each focus, however, includes groups of issues which appear to be fairly closely interrelated.

THE PUPILS

Two different groups of pupils have been identified by staff as likely to be of concern to our topic: those who are academically less able, and those who, whatever their ability, are under-achieving. Initial observation shows that it is the latter group who cause the most frequent and most serious problems for staff; the former group tend, with a few exceptions, to be quite content to wait quietly for the day they can leave.

The underachievers have caused concern to many of the staff, and the problem is a feature of all subjects and age groups. Although it is clear that some of the causal factors are imported from outside the school (such as the influence of parents and friends who have left, or girls having to cook the family evening meal after school), and others are natural to the age group (such as hobbies, part-time jobs and boy-girl relationships), it is also clear that there are other causal factors operating within the school system itself.

For instance, there is the fact that there is a large discrepancy between the number of pupils said by the staff (in one department) to be "Advanced" (7-8%) and the number of pupils said to be "Advanced" by the Comparability Test results (17-18%). Such a discrepancy indicated that some teachers perceive the pupils of being of lower ability than they actually are, thus perhaps enabling the "self-fulfilling prophecy" syndrome to operate. More than one teacher has expressed the belief that pupils are consistently undervalued by staff from a middle-class background who unconsciously equate the language and social behaviour patterns of pupils from lower class backgrounds with lack of academic ability and potential. Pupils who are undervalued are likely not only to work less well for the system, but are also likely to seek ways of re-establishing their sense of self-value by passively refusing to co-operate and actively trying to undermine the system which they perceive to have rejected them.

Besides the specific problems of underachievement, pupils have expressed a concern about the degree to which they can "belong" to an institution which allows them very little part in either the way in which it is run or in the nature of the activities in which they are required to participate. Pupils have, for instance, no place which they can call their own, except perhaps for the often damaged and ransacked lockers. There is little or no continuity of the teacher responsible for their form groups from year to year, and there is no continuity in classes as

these are seated differently for each subject; and pupils have no say in what or how they learn in the core subjects. Thus they find it difficult to form close ties with their place of work, their teachers, or their peers. Lack of a sense of belonging is treated in this study as an aspect of alientation, albeit more a passive rather than an active factor, in that whilst it may not cause alienation, it may prevent its amelioration.

TEACHERS

The researcher has only recently embarked on an examination of the pupil's perceptions of the teachers, but from an early analysis it appears that they see them not in terms of how "hard" or "soft" they are in discipline, but in the extent to which teachers treat pupils as worthwhile individuals and hence how much they need to discipline them. Thus it appears that pupils have no absolute scale of the extent to which a teacher can "keep order", they recognise that one teacher is keeping order whilst tolerating movement and talking, and another teacher is not keeping order in a still and almost silent classroom. The point is that they may listen to the former teacher when he asks for their attention, but even though they appear to be attending to the latter teacher they may be ignoring everything he says, and simply looking for opportunities which force him to assert his authority.

Pupils are judging more on how a teacher maintains a learning situation, than the apparent control he exerts upon them. Thus, although it is indeed so that a teacher who has no control over a class is termed a bad teacher by pupils, yet a teacher who maintains absolute control over the same class is not necessarily termed a good teacher. Pupils rate teachers on the amount they can learn (not necessarily from the teacher) in their lesson. Thus, one teacher was termed "bad" because he never gained control so the pupils felt they controlled him; another teacher was termed "bad" in spite of maintaining absolute control, because "You ask a question and you'll get your head knocked in". A third teacher was a good teacher in spite of continual chattering and pupils wandering around the room, because "...you've got a good working atmosphere. There may be too much noise, but people finish their work and enjoy it at the same time."

It is clear from pupils' comments that, because of strong teacher control in some classrooms, pupils over-react and cause problems for less authoritarian teachers, and thus appear to be alienated from the latter rather than the former. Teachers who are aggravating alienation may thus be those whose classes display the least disruptive behaviour, but then tend to cite pupil behavioural problems in other teachers' classes as evidence of alientation from the latter teachers.

From teachers' reports it was clear that different pupils from the same group are 'alienated' by different school subjects, and what is particularly striking in the case study school is the division of the staff into two different teaching philosophies, each generally associated with a different group of subjects, the Humanities or the Sciences, though each group of teachers would appear to contain the whole range of opinion. The differences between the two philosophies turns out to be a much more complex set of variables than say Barnes' "Transmission/Interpretation" continuum, although that distinction is, or course, a fundamental one to the two philosophies.

The following seven features will illustrate some of the differences:

Feature 1: Both philosophies aim to prepare the pupils for life, but the Science teachers see preparation for life as being the absorption of school knowledge, and the aquisition of traditional academic skills, leading to good passes at the end of the course, and thence to further qualifications or training which will give pupils a role in society and life. The Humanities staff tend to see a good preparation for life as that which enables someone who can fit into society in more general terms than academic qualifications; one whose personality, sense of responsibility, tolerance of differences, and other personal attributes lead to a self-motivated and co-operative individual who will find a particular role in society at a later stage.

Feature 2: Both philosophies espouse good academic standards, but they interpret the notion differently: the Science staff would, for instance, be concerned about developing the ability to write a well structured formal essay; but the Humanities staff would be more concerned to improve a pupil's ability to communicate over a wide range of forms, particularly orally, putting clarity and content higher than form.

Feature 3: Information is regarded by the Science philosophy as being of great importance, and the nature of this information is primarily facts which are transmitted directly by the teacher through dictation or copying, to be learned by the pupils who are seen as passive absorbers; the facts are regularly tested and employed again in other topics. The Humanities philosophy places much less emphasis on informational learning, treating the facts themselves as data to be evaluated - the evaluative response being deliberately sought. In this, the emphasis is on discovery of facts, a process in which the pupil is active both in finding and in using the information.

Feature 4: Similarly, the teachers' role is seen by the Science philosophy as the provider of what must be learned for the pupils; and the Humanities philosophy sees the teacher as the provider of a framework in which the pupils can choose from a great deal of knowledge what they will work on, and where the teacher is seen more as a resource to be consulted than a source of what must be learned.

Feature 5: Because the Science philosophy inclines toward the transmission of a given set of facts, Science teachers tend to rely to a great extent upon the syllabus given to them by the Department: the emphasis is thus on prescription and on learning the "right" answers with no room for pupil negotiation of what is to be learned. The Humanities philosophy emphasises the importance of the pupil responses, encouraging them to judge the appropriateness of answers for themselves. The distinction is shown by the fact that "The Web of Life", the text of a biology project which esponsed these latter aims, is used by some Science teachers with printed answer sheets.

Feature 6: The above features imply different approaches to classroom organization and control, and these differ in the two philosophies. Science teachers report having no discipline problems, and are observed not to be using either group work or an activity approach. They explain this lack of use by the fact they believe that to do so would create discipline problems and also because, particularly in the upper school, they believe that activities mean both less learning (fewer facts) and a lower cognitive level (theories are not efficiently learned through activities). The Humanities philosophy espouses a much more open approach to

control, with markedly less external discipline, and concommitantly much movement, talking and some control problems. For instance, the contrast is explicit in that some Science teachers have expressed the view that the pupils must experience external discipline in order to learn self-control, whereas Humanities staff have expressed the view that pupils only learn self-control by being given the opportunity to practise.

Feature 7: The difference in philosophies amongst the staff also relates to the way in which teacher will judge pupils: generally speaking, the academically orientated staff look for factual absorption skills, the social skills orientated staff look for responsiveness and responsibility. Pupils are thus judged according to quite different criteria, hence alienation from school learning thus takes two quite different forms with teachers of the different philosophies: the Science staff report problems of under- and non-achievement as pupils do the least possible, or simply refuse to do the work and some very able pupils vote with their feet leaving school at Year 10 although they are quite capable of T.A.E. work. And the Humanities staff encounter more frequent and more overt behavioural problems, and an adherence by pupils to the low-level, undemanding and secure learning tasks, such as the copying of tracts from texts, or the colouring in of maps with no analysis of the meaning or relevance of the features displayed. The differences go some way towards an explanation of the fact that different pupils are alienated from different subjects and teachers.

The study has revealed that, in general, teachers are at one and the same time both uniformed about educational ideas and greatly concerned about many of the issues currently debated. There is very little professional development taking place in terms of reading and further study, but a considerable amount of activity taking place in the school in terms of efforts by individual teachers, certain subject staffs and mutual interest groups to alleviate the problems which they encounter. Very few of the staff have read any of Illich, Bruner, Holt, Hargreaves or Toffler, and none have read two or more, yet a number of staff try to ensure that all pupils go away on a school camp and some are establishing a "drop-in" centre with Schools Commission funds. The centre will be a place where pupils in strife with teachers, or each other, and those who need to talk over problems informally, can "drop-out" of classes and gain some individual attention and group therapy. Some other staff have also initiated a "Young Achievers" scheme where pupils can gain some understanding of the commercial world by starting their own cottage industries. It appears to this researcher, however, that a co-ordinated effort among the staff to read more widely, to discuss issues and share experiences and findings, would not only greatly improve the activities staff are offering, but would indicate problems and solutions not perceived by the staff which have been well documented in the literature (for instance, the negotiation of the curriculum, the pastoral role of the form teacher, and the importance of contributing to and "owning" the physical environment of the school). In this sense teachers in the school may be said to be frustrating their own best efforts to help.

CURRICULUM

Obviously there are a number of features, such as the degree of adherence to the syllabus, which have been mentioned above which are directly related to curriculum. Two particular features stand out as being specific to this topic, however: the relevance of the topics learned, and the nature of

"alternative" courses for pupils who are less successful academically.

The relevance of the curriculum has been cited by many staff as being one of the main reasons for lack of interest and motivation to learn amongst pupils, but different teachers have very different views of the matter, and the pupils generally would appear to have yet other, quite different views. Whilst some staff advocate a highly streamed approach to teaching with the sole aim of academic excellence for the few able students, another equally extreme view is to abandon traditional subjects and academic aims altogether, for a course dealing with "life skills" such as health, recreation, social relationships and crafts. Between the two extremes other teachers have suggested that, because pupils are alienated by the syllabus of the traditional subjects, but that these are nevertheless necessary, the response should be to find topics within, and new ways to teach, the traditional subjects that make them relevant to the pupils' needs and experiences.

All of these views, however, leave out the pupil viewpoint about which evidence is accumulating to suggest not only that pupils expect school to be quite separated from the world outside, but that they view that world quite differently. Teachers have spoken of pupils who, they say, are incapable of seeing the relevance of learning even when they are given a task from everyday life which takes them outside the school.

One example was of a teacher who did a project with a class to choose the best value of colour television set and then to find the cheapest place to buy it. He sent the pupils around the shops, they collated the material and found the best price. When the teacher later asked a pupil whose family had subsequently bought a television how they had gone about it, the pupil had said that they'd just gone to Vox Adeon round the corner and bought the biggest one. The teacher interpreted this to mean that the pupils had failed to see the relevance of the exercise, but it could also be interpreted to mean that the exercise was actually irrelevant to the pupils because it was based upon the teacher's assumption that the fact that the aim was to buy a television on both occasions was a more powerful similarity than the difference between the ways in which it was purchased, whereas the opposite was true for the pupils. In effect the pupils appeared to be saying, "That is how we purchase a television at school, which has nothing to do with how we purchase a television at home". Had the teacher read a little about the social construction of reality, he may have put the pupils' inability to relate the two events down to a cuase quite different from the pupils' mental ability.

It is logical to extend this instance to cover other examples from the "life-skills curriculum" and to ask whether the school can ever teach anything but school knowledge. Thus the relevance of school subjects is an important and problematic issue, with pupils rejecting the school curriculum whatever is taught.

There are two different alternative courses in the school at present, both confined to Year 11; one course is a repeat of Year 10 work with the aim of improving examination marks; the other course is a more open "General Studies" course aimed at providing pupils with some "life-skills" in terms of communication, social relationships and numeracy. Both of these courses are intended to meet different aspects of pupil alienation: the repeat of Year 10 course aims to harness existing abilities not previously exercised by pupils because they were too immature, or did not realise the necessity of qualifications for employment earlier; and the General Studies course aims to provide pupils with topics they have not previously studied through which they will be more suited to

employment and life in general.

It is obvious that for either of these aims to be realised some specialist teachers are necessary, but what has happened is that the Department has not seen fit to make the alternative courses a speciality, and they have simply been staffed by teachers with light timetables, with little or no regard to either the teachers' skills or interests. These courses are therefore of great concern to the Principal and staff, and there is considerable debate at present about how they are to be organised next year.

In the longer term, however, should alternative Year 11 courses become well established, many staff are looking towards alternative course along the pattern of the General Studies pattern for the lower school. At present staff have not thought about the problems associated with such courses, problems concerning selection, transfer, content and teaching styles, for example. It seems, therefore, that pupils will continue to be alienated by what they are expected to learn, teachers will continue to put forward their own philosophies, but little will eventuate.

CONCLUSION

I have tried briefly and in very general terms to indicate aspects of alienation with regard to teachers, pupils and what is taught. It should be emphasised that the issues mentioned are still emerging, and that in this limited report shades of meaning and individual perceptions have been lost. However, it should be clear that a number of the issues raised could not have emerged except through a case study approach. My present feelings are that the two major factors which will be illuminated by the study will prove to be the implications and effects of the two broadly distinctive philosophies, and the problem of the relevance of school learning to the majority of pupils.

ADDISON HILLS HIGH SCHOOL (The Victorian case study)

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Addison Hills High School has about 600 students and 50 staff. Nine busses bring its students from five towns and the countryside around Addison Hills to the school, each carrying about 45 students. These "bus-groups" preserve the identities of the surrounding towns. In the early years at the school, students tend to form groups based on their home towns; by the later forms, the groups are more mixed. The communities all have their own identities and characters; certainly the students identify with their home towns. Football and netball in the area are organised around town teams which compete in parallel competition, town against town. These rivalries are central to the life of the area.

The communities are friendly. The Churches are losing their influence of some years ago; in the bigger towns the Red Cross is winding up for lack of support. Local discos are run by the Apex Club. But the family remains strong. Some families choose to live here, owning hobby-farms and choosing fairly long-distance commuting to the city over suburban life; others have been on the land here for generations.

The students are polite, described by their teachers as "docile" or "conforming". They are unlike urban students whose style is more of challenge. The area, the school and the students make Addison Hills a pleasant place to teach. Although about a third of the teachers are in their first five years of teaching, many have been here longer, a couple for twenty years. The principal is one of these two.

The school is an academic high school, defending a good record of HSC passes. There is a technical school in another town twenty miles away, but students must make a deliberate choice to go there: for many, it means even further to travel to school. There are no busses to the technical school from the towns around Addison Hills.

Unemployment in the area is high, especially among youth. But the unemployed are not visible here as they are in the city. Because unemployment is high, students are staying on longer at school. Years 11 and 12 are noticeably larger this year.

The school has a work experience program which most students enjoy. For some, it is an immediate springboard to work; for most, it is a way of coming into contact with the world of work and learning or re-building expectations about what it demands.

Some issues arising in the Addison Hills study:

(1) Networks of information about jobs

Students at Addison High School are aware of jobs becoming available through a network of personal contacts. Some visit the Commonwealth Employment Service (CES) office in the biggest town regularly. Friendship networks carry information about jobs available or becoming available. Ex-students of Addison Hills High who move from one job to another may suggest friends from the school as their own replacements. A shoe-maker's apprentice goes on to another job and his school-friend moves into the apprenticeship. Those on the "outside" help students inside the school to get out.

Families, too, provide an important network. Local employers fill positions with locals: in this sense, the communities "look after their own".

Students who are disaffected with school can stay on and wait. Having signalled their intention to leave, friends and family can help to make leaving possible.

(2) Sources of disaffection

The school has a difficult time making itself a source of identification for students. Sport, peer groups and lack of public transport between the towns make the towns much more stable as sources of identity.

School sport especially is weakened by town identifications: students would rather train for town teams than play or train from the school team (or risk injury in school games and miss inter-town matches). Perhaps in consequence, perhaps because school facilities are not yet adequate for sport, or perhaps because the school values academic work, school sport does not attract much loyalty.

The curriculum is geared to academic work. Some students at Addison Hills would prefer a different kind of education. But more importantly, perhaps, students experience a geometric progression of expectations of them: the higher up the school they go, the more demanding the work becomes. It is easier to fail each year. Students feel they try harder yet become more vulnerable. "Giving up" is acceptable to students when the demands become intolerable. For poorer students, the school seems more interested in preserving its HSC pass-rate than meeting their needs. They experience themselves as being "cooled out" of the school.

Good and poor students alike see academic ability as the reason: their success or failure is a function of their own natures. The school is seen as hard, but it is not quite clear whether it is also seen as fair. Certainly, it is "known" to be "academic": much of the curriculum seems impractical or irrelevant - not geared to utility. A perceptive school-leaver notes that school "gets you used to routines, which is helpful", but adds that the routines of work are different: regimentation of the day into classes is not a part of the world of work.

(3) The decision to leave

From the perspective of the school, the decision of a student to leave in Year 10, 11 or 12 often seems "sudden". One student at Addison Hills decided to leave on a Monday and was gone by the following Thursday. But deciding to leave is a process, not an event. The roots of the decision may go back to the beginnings of the student's experience at Addison High.

One student, Alison, talks about the change in expectations between Grade 6 and Form 1 as sowing the seeds for her failure to keep up with the work. She would not make it to the top of the school, she knew, so she was reconciled to making what she could of her education, then looking for a job at the point where her failures outweighed her successes. The peer group provided a model of life outside school -- an alternative system. Adolescence brought a changing role in the family. A trip away gave her a taste of the "adult" social world. And then a round of examinations and failing grades. A different world was available: former assumptions about staying in the system were now overturned. Suddenly she found herself at the point of decision. She left for a job in a local shop.

Many students are waiting in the school for work to turn up. Some leave without jobs, but are already part of the two-way information networks which signal both opportunities and intentions to leave.

Some students are said to choose "the dole" as an acceptable alternative to work. There may be a few for whom this is true, but it seems to be a myth: it is said of others, rather than about friends or oneself.

Teachers at Addison Hills do not easily accept the problem of alienation from school. They attempt to provide options within the academic curriculum which can excite interest, but they cannot remake the school. They do what they can for students, but they cannot relax expectations of performance to the point where they allow students to have unrealistically low expectations about Year 12 and HSC.

And neither should the school be seen as the sole or even the primary source of disaffection or alienation: other forces shape students' worlds and create alternative images of what they are and can be. Home, friends and community offer alternative forms of life which contend with the image of the school as a place to be and as a preparation for work or further education. While still in school, students are not just students, just as when they leave school for work they will not just be workers. Other roles and other ways of being shape their views of themselves and of the relations they have or might have to society at large. At Addison Hills, "society at large" can be a community which is understood in a very immediate way. It provides both a place to be and ways of being.

SCHOOL, WORK AND CAREER

Trevor Williams, Margaret Batten, Jeff Clancy and Sue Girling-Butcher

The Australian Council for Educational Research

ACER has a program of research underway which relates directly to the conference theme. This program began in mid-1978 and is funded by the ERDC and ACER for a three-year period. The first of a series of reports detailing our findings has been published (Williams et al., 1980) and several more are in preparation. In this and the following two papers we discuss findings from four components of the program, namely: a nationwide survey of some 6000 17-year-olds at school, in the transition from school to work, or in the early years of their occupational career; a survey of a national sample of 1000 students 13 to 14 years old in which we look at models of achievement in primary school and the development of vocational preferences in high school; the development of a model and measure of the quality of school life, from a student's perspective; and a study of the psychosocial consequences of unemployment based on interviews with 200 individuals aged between 18 and 19 years.

Background to the Program

In February 1978 the Education Research and Development Committee indicated its interest in supporting research in the general area of the transition from school to work. This indication took the form of a request to the educational research community for proposals outlining the form that a study of school leavers might take. The broad aims of the study had been defined by the ERDC Priority Area Advisory Group concerned with demographic effects and social change, and took the following form.

1. To obtain information about the post-school experience of school leavers which might be seen as having implications for the structure, timing and content of secondary education.
2. To feed back into school decision making the perceptions of ex-students about the strengths and weaknesses of their school experience.
3. To identify critical points in school experience where particular types of failure or particular choices made have predictable long term effects.
4. To test the association between school attainment and length of schooling and the relationship of both to post-school options of students.
5. To examine the relationship between social background, sex, ethnic origin and geographical location on the one hand, and school and post-school achievement and options on the other.

In March 1978 we responded to this request with a proposal that linked ongoing ACER work in this area to a research design addressing the concerns of the ERDC. One of the major components of this design was the proposition that the subjects of the study should be the nationally representative samples of 10-year-old and 14-year-old students involved in the Literacy and Numeracy Study conducted by the ACER in 1975 (Keeves and Bourke, 1976; Bourke and Lewis, 1976; Bourke and Keeves, 1977). In short, we proposed to follow up the 6628 10-year-olds and 6247 14-year-olds sampled in 1975 and so build on to the existing Literacy and Numeracy Study data those data that would allow us to address the concerns expressed in the terms of reference.

A follow-up study of these two groups seemed particularly appropriate for the following reasons. First, by October 1978, the time at which we would begin data collection, members of the

'14-year-old sample' were now aged 17 or 18 and be either early school leavers of one or two years standing, or in their final years of high school and facing the transition from school to work or further education. Second, the '10-year-olds' would be 13 or 14 years of age and approaching their first major vocational decision, whether or not to leave school at the minimum age. Third, we had information already pertinent to the often-voiced concern that schools were failing to prepare students in the basic skills of reading, writing, and numeracy necessary for successful performance in the world of work. Fourth, we had available already defined samples that were representative of both State and National populations in these age cohorts. Fifth, because we could anticipate following these individuals through 1980 we were in the fortunate position of being able to study the process of school-work transition at two stages in a quasi-longitudinal study: the early antecedents, in the form of those processes leading to the formation of early vocational preferences, among the younger sample; and the transition from school to work, along with early career formation, among the older sample.

An Integrating Framework

The unifying concern of the terms of reference is with the social processes implicated in status attainment, both educational and occupational. Accordingly, we have adopted the basic arguments of status attainment models to provide a framework within which to link these terms of reference, and integrate the several investigations they suggest.

Status attainment models have their origins in the study of social mobility and, over the past fifteen years, have derived much of their structure and impetus from the concern that societies provide equality of opportunity for their members. In their basic form the models link educational, occupational, social and economic attainments in one generation to those in the next, principally through educational attainments (see, for example, Jencks et al., 1972). Status attainment oriented research looking at occupational attainment and social mobility in Australia is exemplified in the work of Broom and Jones (1976), Jones et al. (1977), and Broom et al. (1980). The general status attainment model also subsumes studies that focus on only a part of its structure; for example, on the social processes that affect educational attainment, or on the transition from school to work.

The Research Program

Within this framework we have developed six complementary studies whose nature is indicated below.

1 Literature Review. A review of Australian research on the transition from school to work (Sturman, 1979).

2 A Study of School Leavers. A three-year study of status attainment during the transition from school to work or further education, and during the early career, based on a nationally representative sample of more than 6200 individuals aged between 14 and 15 in 1975.

3 The Development of Vocational Decisions. A three-year study of the development of vocational decisions among students during the early years of high school, based on a nationally representative sample of individuals aged between 10 and 11 in 1975.

4 Quality of School Life. The development of a theoretical model that defines this meaning and structure of 'quality of school life'; the development of a measure of this multi-faceted construct; and, to address the second term of reference, a survey of the perceptions of students about the 'quality of school life'.

5 Case Studies. Again in connection with the second term of reference, case studies of the quality of school life and of the way in which decision-making in schools is influenced by information about the perceptions that students have of the strengths and weaknesses of their schooling.

6 The Psychosocial Consequences of Unemployment. A study of the psychosocial consequences of unemployment using interview techniques with some 200 individuals from the older sample noted above who are currently living in Victoria.

The several studies complement each other. The literature review provides the established fact - or lack thereof - to form a basis for the second, third and sixth studies noted. Data on unemployed youth obtained in the Study of School Leavers contribute to a preliminary understanding and identification of the sample for the sixth study. And, the 'quality of school life' component contributes not only a theoretically grounded measure of a unique and largely unexamined outcome of schooling, but one integrated into a model of developing vocational preferences (study number 3), and one which provides information potentially useful for school decision making (study number 5).

The Surveys and Some Illustrative Findings

In the remainder of this paper we report on the models, measures and analyses characteristic of the first phase in each of the two surveys noted above. The two papers which follow this report are on the development of a measure of quality of school life and on the psychosocial consequences of unemployment respectively.

At the time of writing our analyses of data on achievement (in primary school) and vocational preferences among the 13-year-olds were complete and a report in preparation. While we will report on these during the presentation it is premature to do so here and we confine this report to an illustrative account of the findings from the larger and older sample, the 6200 individuals aged 17 to 18 in 1978.

Three Main Questions

The study was designed to answer three main questions:

1 What influences achievement in the basic skills of literacy and numeracy?

2 How do these factors, along with achievement in basic skills, affect early school leaving?

3 Among early school leavers, what influences the 'success' of their transition from school to work, how well do they fare in the early years of their working life, and how do they see their future?

Patterns of Influence

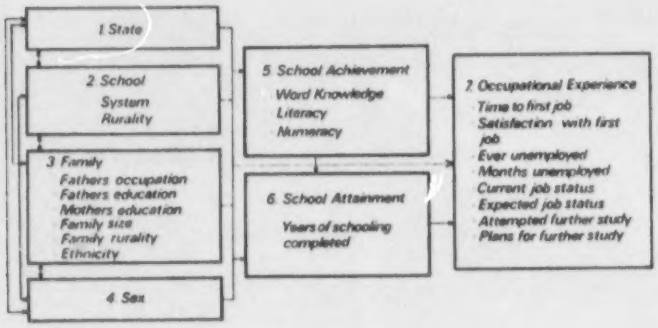
To answer these questions, we develop a model of the patterns of influence affecting achievement in school, school leaving, and workforce experience. This model is shown in the following figure. This particular arrangement of groups of influences has the following meanings: the three forms of school achievement in group 5 are influenced by all the factors in groups 1 to 4; school attainment (group 6) is influenced by groups 1 to 5; and occupational experience (group 7) is affected by all the influences in groups 1 to 6.

Thus we examine the following patterns of effects:

1 the effects of State/Territory of residence, school system (Government, Catholic, Independent), family rurality, school rurality, father's occupation, father's education, mother's education, family size, and respondent's sex (groups 1 to 4) on achievement in basic skills (group 5);

2 the effects of all of these factors, including achievement in basic skills (groups 1 to 5), on whether or not an individual becomes an early school leaver and, among early school leavers, the number of year levels completed before leaving (group 6);

3 the effects of all of these factors (groups 1 to 6) on success in the early working life of early leavers and on their degree of involvement in further education (group 7) - that is, we examine influences on: the time taken to find a job; satisfaction with that job; the experience of unemployment; length of unemployment; prestige of present job and that of the job expected in 1984; any further education undertaken; and any further education planned in the future.



Data

During the summer of 1978-79, we mailed out questionnaires to some 6000 individuals aged between 17 and 18 and living all over Australia. Eighty per cent of these were completed and returned to us. Four thousand nine hundred and nineteen Australians told us what it was like to be 17 years old at work, at school, and in between.

Analyses

Since we adopted a structural equation model to mirror our theoretical arguments we estimated the parameters of the model by a series of structural regression equations. Thus, the parameters of the model are partial regression coefficients and we focus our interpretations on these. Moreover, since the project was developed as policy research whose findings are destined for an (essentially) lay audience, we concentrated on the more concrete interpretations provided by the metric form of these coefficients. Within this general context we might note two further points: dummy variables were used to represent State, school system and ethnicity influences; and, we used census data to construct an index of family and school rurality.

Some Illustrative Findings

Some of the findings are presented as direct quotations from the text under the following five headings: influences on achievement; stayers and leavers; the transition from school to work; the early career; the future. They are provided as excerpts from Chapter 6 of the Research Monograph. They should be accepted or rejected within the context of the complete report and not from this illustrative account alone.

Influences on achievement

One is left then with the likelihood that the State effects shown represent State differences in the practice and provision of education.

Other things equal, some ten per cent more Catholic school students and nine per cent more Independent school students achieve mastery of Literacy relative to students in Government schools ... As with State effects, and for the same reasons, we are unable to unequivocally attribute these differences to differences in what the three systems do and provide for their students.

Most likely rural students are disadvantaged by the isolation and limited provision they experience; however, this disadvantage seems to have little effect on the learning of basic skills.

A degree of disadvantage was clear, however, for students born outside Australia in a non-English-speaking nation.

Stayers and leavers

Other things equal and relative to NSW students ... some 22 per cent more ACT students stay on in school ... thirteen per cent fewer Tas. students stay on to the final years of high school.

Other things equal nine per cent more non-masters of Numeracy become early leavers. Students attending rural schools ... are a little less likely to stay on to the senior years of high school.

Relative to Australian-borns like them ... some 19 per cent more (students born in a non-English-speaking nation) stay on to the final years of high school.

The following sections apply to early school leavers and not the age cohort generally.

The transition from school to work

Those at most risk during the period between school and work, in the sense of finding it harder to get a job, are those who leave school at the earliest opportunity. Finding a job seems to be a meritocratic process in which years of schooling is the criterion applied by employers ... Other things equal, each additional year of schooling reduces by one month the time it takes to find that first job.

The early career

With a couple of exceptions, early school leavers are at risk or not, according to their merits. Other things equal, the risk of unemployment is greatest for the least schooled and the least skilled ... While early leavers tend to be hired on their merits, they tend to be fired on their merits as well ... employers evaluate the on-the-job performance of their employees, especially their numerical skills.

Other things equal ... it is the more numerate who keep their jobs longer and who end up in 'better' jobs ... Ten per cent fewer of those demonstrating mastery of numeracy have ever experienced unemployment, and on the average this group experiences a month less unemployment, and obtains higher status jobs than does the group who failed to master these basic numerical operations.

Each extra year of schooling ... decreases their probability of unemployment by fourteen per cent, decreases their overall unemployment by one and three-quarter months, and finds them jobs some 12 points higher in status.

Other things equal, early leavers from Catholic schools experience less unemployment though they experience no advantage in the time it takes to find a job ... Other things equal, 10 per cent fewer early leavers from Catholic schools have experienced unemployment compared with those who attended Government schools ... early leavers from Catholic schools have been unemployed, on the average, more than three-quarters of a month less than Government school early leavers ... Catholic school early leavers end up in 'better' jobs ... We infer that early leavers from these schools may have more of the traditional occupational virtues that employers value.

The future

Failing to master basic Literacy and Numeracy skills increases the probability that early leavers will not go back to school to obtain more education ... Those who have done well at school ... plan to get more schooling and expect to do well in the workforce ... the least capable and the least schooled of the early leavers seem willing to accept a less than bright occupational future rather than return to school.

Further education must be presented to youth as an experience different from that of traditional schooling and as one that provides them with skill capital that can be traded on the open market.

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THE QUALITY OF SCHOOL LIFE

Trevor Williams and Margaret Batten

Australian Council for Educational Research

In 1972 Christopher Jencks commented on an aspect of educational inequality generally recognized but seldom given explicit consideration in educational research:

> 'Some schools are dull, depressing, even terrifying places, while others are lively, comfortable, and reassuring ... such differences are enormously important and eliminating these differences ... would do a great deal to make the quality of children's (and teacher's) lives more equal. Since children are in school for a fifth of their lives, this would be a significant accomplishment.' (Jencks et al., 1972:256).

Jencks is talking about the quality of school life. To achieve this end the conceptualization and measurement of quality of school life is a necessary first step. In this paper we report on the development of a model conceptualizing the dimensions of quality of life within schools from the perspective of students, the operationalization of this model in the form of a self-report Likert-scale measure, and the use of this measure in a national survey of 14-year-old students and in seven case study schools.

Quality of Life and Quality of School Life

The structure and part of the content of the model was developed as a direct analogue of the more general 'quality of life' measures found in the literature on social indicators. Burt et al. (1978) developed a model for the 'structure of well-being' from this literature and defined this structure in the following way: 'the term, structure of well-being, refers to the set of interrelated continua in terms of which individuals assess their existing quality of life within their society' (Burt et al., 1978:368). Its dimensions are as follows: general satisfaction; positive affect; negative affect; and satisfaction with domains. General satisfaction refers to overall feelings of well-being and the two affect measures tap overall positive and negative feelings, respectively, about an individual's life as a whole. The several measures of domains reflect feelings of satisfaction with more clearly delineated components of an individual's life such as occupation, income, health, family, neighborhood, local government - in short, 'places, things, activities, people, and roles' (Andrews and Withey, 1976:11). Figure 1 shows the structure developed by Burt et al., how the twelve measures of perceived quality of life - positive affect; negative affect; satisfaction with housing, neighborhood, finances, work, leisure, store, health centre, police; and general satisfaction (Y1-Y12) - relate to the four dimensions; and how the dimensions are related among themselves. Note that positive affect and negative affect are not related.

The quality of school life analogues of these dimensions are straightforward, with the exception of domains. One can think of, and report on, overall feelings of satisfaction with school, and the degrees of positive and negative affect that arise as part of life in school. However, the domains of quality of life have no obvious counterparts in a model of the quality of school life. Studies have been undertaken in related areas such as the organizational climate of schools and student attitudes to various aspects of schooling; and one study developed a three-part Quality of School Life scale (Epstein and McPartland, 1976). However, none of the models described in these studies adequately developed a theoretical perspective on the domains of schooling necessary for our model. It was from

the work of Spady and Mitchell (1977; also Mitchell and Spady, 1977, 1978), on the development of a model of schooling, that the domains were derived.

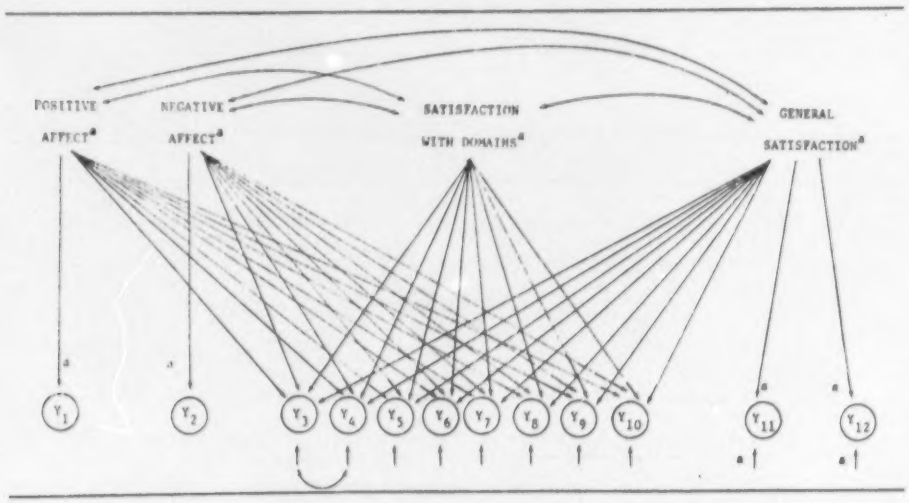

Figure 1 The Structure of Well-Being (after Burt et al., 1978:387)

The Spady/Mitchell Model

This model sees schools as organizations through which individuals are linked to larger social collectivities; in fact, the school is seen as 'an action system for integrating individual expectations for personal fulfilment with societal expectations for the school to develop the structures necessary to provide for the nurture of personal development, competency, responsibility and integration among students' (Mitchell and Spady, 1977:41). The authors define four broad societal level expectations responsible for the creation and maintenance of schools, 'expectations (that) can best be described in terms of certain characteristics thought to be important for adult citizens to possess in order to enter and participate in a society which is productive, orderly, and attractive to its members'. Schools are expected to:

1 facilitate and certify the achievement of technical competence, in effect, to certify that individuals are capable of doing certain tasks valued in the society at large;

2 encourage and enhance personal development in the form of physical, emotional, and intellectual skills and abilities;

3 generate and support social integration among individuals across cultural groups and within institutions;

4 nurture and guide each student's sense of social responsibility for the consequences of his/her own personal actions, and for the character and quality of the groups to which the student belongs. (Mitchell and Spady, 1978:9)

In response to these societal expectations schools have developed organizational structures whose function is to translate these expectations into action within the school, and these structures are:

1 certification structures, which enable students who have reached agreed standards of technical competence to qualify for certificates, rewards, promotions, etc.;

2 instruction structures, which facilitate personal development through learning and exploration;

3 socialization structures, which emphasize student participation in the social system of the school in order to achieve social integration;

4 supervision structures, which engender the development of social responsibility in students through adjustment to and learning of prevailing social norms and values.

Societal expectations can be met, and school organizational structures operate successfully, only if students are attracted to these outcomes and respond to the school processes which embody them. There are four major areas of student experience or conditions of motivation corresponding to the four societal expectations and school structures, and these can be diagrammatically represented as follows:

Societal expectations		School structures		Student experiences
Technical competency	-	Certification	-	Opportunity (security, adequacy)
Personal development	-	Instruction	-	Adventure (adequacy, intimacy)
Social integration	-	Socialization	-	Identity (intimacy, worth)
Social responsibility	-	Supervision	-	Status (worth, security)

From the student's perspective, certification processes, which embody performance standards, are only attractive if they enable the student to qualify for desirable and real future opportunities; the concern here is for the relevance of schooling. The key to instructional effectiveness in the personal development of the student is the experience of adventure in learning, an experience which is intrinsically rewarding and leads to self-motivation. The main motivating factor governing the realization of social integration outcomes is identity formation, the development of self-awareness in relation to the larger society. Acquiring a sense of social responsibility, subordinating personal interests to the general welfare, is dependent upon the student achieving status in the group, an acknowledgment of the prerogatives and prestige of the student.

Students have their own expectations of what they want from school; namely, fulfilment as this is defined in experiences of self-worth, intimacy, adequacy and security. 'The individual therefore initially responds to the school organization on the basis of its concrete capacity to support or frustrate these personal fulfilment expectations. Thus, personal expectations further constrain and shape the school as an organization, pressuring it to serve as a vehicle for personal fulfilment as well as for societal achievement' (Mitchell and Spady, 1977:6).

Although the four aspects of student experience have been described as distinct constructs, each flowing through to a particular kind of societal expectation and school structure, in reality there is a considerable degree of overlap between the areas, as becomes apparent when trying to establish a link between student expectations and student experience. Thus, opportunity involves feelings of security in being confident of fair treatment, and feelings of adequacy in coping with qualificatory tasks; adventure involves feelings of adequacy in response to the challenge of learning, and feelings of intimacy arising from encounters in the teaching situation; identity involves feelings of intimacy with peers, and feelings of worth in the context of the school; and status involves feelings of personal worth, and feelings of security about one's position.

Spady and Mitchell argue that the disjunction between societal and individual expectations is a continuing source of tension within schools and, in the interest of maintaining social control, schools are able to draw on control resources which are exercised in an authority mode or in a power mode.

The distinction between authority-based and power-based control is captured in the following statements: 'authoritative social control is not imposed by the superordinate ... it is voluntarily embraced, intrinsically fulfilling, and personally legitimated by both the subordinate and the superordinate through significant engagement in the interaction between them ... authority is the primary basis for social control and power is derived from it by displacement from intrinsic experience to the outward symbols which individuals have learned to associate with those intrinsically fulfilling authority experiences' (Mitchell, 1977:16).

To the extent that schools draw on these resources to legitimate social control through appeals to authority, rather than power, students tend to fulfill their basic personal expectations, internalize those behaviours necessary for responsibility, integration, development and competency, and see the certification, instruction, socialization and supervision structures of schools as providing for, respectively, the creation of opportunities, feelings of adventure in learning, identity formation, and social status. On the other hand, while power based control mechanisms may engender the behaviours necessary to meet societal level expectations, the displacement of rewards and sanctions from intrinsic experience to the outward symbols of this experience fails to transform the expectational and meaning structures of students. As a result, the behaviours in question are not internalized or, at least, not fully internalized: 'The ability to re-align the orientation and meaning system of the subordinate and to secure an acceptance and endorsement of the legitimate purposes of a social structure depends on the use of authority rather than power in social transactions' (Spady and Mitchell, 1977:23). The power-based counterparts (the outward symbols) of worth, intimacy, adequacy and security are identified as bipolar constructs, respectively; honour/shame, acceptance/rejection, potency/manipulation, and autonomy/coercion.

Given this structure among the variables it seems possible to think of clusters as follows: worth, honour, intimacy and acceptance linked to identity; intimacy, acceptance, adequacy, and potency linked to adventure; adequacy, potency, security and autonomy linked to opportunity; and worth, honour, security and autonomy linked to status. The term 'linked' is used rather than 'caused' or 'influenced', as the Spady/Mitchell model does not provide a clear discussion of the causal relations among these variables.

Spady and Mitchell develop the model in some detail beyond this point in three papers (Spady and Mitchell, 1979; Mitchell and Spady, 1977; and Spady and Mitchell, 1977) and elaborate the student and teacher behaviours characteristic of the individual and organizational action systems of the school. However, for the purposes of the present study, further development of the model need not be undertaken; the focus is on the outcomes of these processes as they are experienced by students.

Development of a Measure of the Quality of School Life

Based on the theory of schooling outlined by Spady and Mitchell, four constructs were postulated, each identified at a minimum by five indicators: the four rewards/sanctions deriving from authority-based and power-based control plus a direct measure of identity, adventure, opportunity or status as appropriate. In short, four domains of schooling were postulated, those connected with identity (worth, honour, intimacy, acceptance), with adventure (intimacy, acceptance, adequacy, potency), with opportunity (adequacy, potency, security, autonomy) and with status (worth, honour,

security, autonomy).

The next step was to develop a questionnaire. Items were written to measure the general and affect constructs, the domain constructs which dealt with student experiences of opportunity, status, identity, and adventure, and the associated indicators of security, worth, intimacy and adequacy. The five-point response scale used for all items was: strongly agree, agree, half agree, disagree, strongly disagree.

Examples of Items

SCHOOL IS A PLACE WHERE ...

(1)	I really like to go	(General)
(2)	I feel successful	(Positive Affect)
(3)	I feel bored	(Negative Affect)
(4)	I don't see the value of what we learn	(Opportunity)
(5)	people think a lot of me	(Status)
(6)	I get to know myself better	(Identity)
(7)	learning is fun a lot of fun	(Adventure)
(8)	I don't do well in tests	(Adequacy as it relates to Opportunity)
(9)	I like to find out more about the things we do in class	(Adequacy as it relates to Adventure)

In April and May 1979 a trial testing was carried out with 353 Year 10 students in five Victorian secondary schools. Item analysis of the responses showed alpha reliabilities for the domains of schooling subscales of 0.7 - 0.9. A number of items were retained, others rewritten, and new items added. A final form of the School Life questionnaire was produced, containing 81 items: two general satisfaction items, ten positive and negative affect items, and 69 domains of schooling items. Space was made available at the end of the questionnaire for students to list the things they liked and disliked most about school.

The questionnaire was administered in July 1979 to a national sample of approximately one thousand 14-year-old students in 250 government and non-government schools.

Analysis of the Data

In the first instance item analyses were carried on all items in the six scales: positive affect, negative affect, status, identity, adventure, and opportunity. Respondents with one or more missing responses within a scale were deleted in the analysis. All scales proved to have acceptable reliabilities. The results were as follows:

Scale	Alpha Reliability	Item-Total Correlation Range
positive affect (5 items)	.69	.38 - .53
negative affect (5 items)	.72	.33 - .61
status (18 items)	.77	.10 - .55
identity (18 items)	.82	.28 - .51
adventure (17 items)	.83	.05 - .63
opportunity (16 items)	.73	.09 - .57

These scales were refined by reducing the number of items in the domain scales to 10 items per scale measure, two for each component indicator, on the basis of their item-total correlations.

Thus the revised version of the Quality of School Life Questionnaire contained 52 items: two general satisfaction items, five positive and five negative affect items and ten items for each of the four domain scales. It is this version of the questionnaire that was used in the case studies.

To obtain further information about the reliability and validity of the six scales, factor analyses were carried out on the data, using the reduced 10-item domain scales.

With the positive and negative affect scales, in each case one factor was sufficient to explain the correlations among the five indicators. As a result these measures show high validities (.83 and .85) indicating that each is tapping a unitary trait. Their reliabilities suffer, however, because they are five-item scales.

In the case of the four domain scales, either two or three factors were required to explain the covariation among the indicators, indicating a degree of heterogeneity in the constructs being tapped with these measures. The reliabilities approximate or exceed Cronbach's alpha because the latter is a lower bound estimate of the true reliability, and all four would be considered acceptable in this respect. However, the acceptability of the validity estimates is another matter. If one assumes that the theory generating the measures is correct then the first unrotated factor provides the best summary of the relations among the indicators. Scale validities calculated on this basis range from .86 to .92 indicating highly valid scales. However, when the factorial homogeneity of the scales is tested rather than assumed through rotation of the factor solution, the valididites of the scales decrease to between .55 and .69, reflecting the factorial heterogeneity of the measures, and suggest the need for further refinement of the scales. Nevertheless, these lower bounds to the validities of the four domain scales are of a level that offers partial, if not wholehearted, support for the Spady/Mitchell model.

An examination of the correlations between the scales indicates that there may be a problem with the discriminant validity of the four domain scales; while we should expect the scales to be correlated, the discriminant validity of the test is compromised somewhat when they share between 25 per cent and 50 per cent of their variance in common. This evidence suggests that we may not have been able to satisfactorily separate the dual contributions of worth, intimacy, adequacy, security, honor, acceptance, potency and autonomy to the status, identity, adventure and opportunity constructs in the way the items were written. Thus, we may be confounding the measures and generating higher inter-scale correlations than are warranted.

Work in Progress

On the basis of the outcomes of the later data analyses, we have modified the constructs postulated by the Spady/Mitchell model in the hope of obtaining factorially homogeneous and maximally valid scales. We have dispensed with the authority-based indicators of worth, security, adequacy, and intimacy and their power-based counterparts because of their suspected contribution to high inter-scale correlations. The results of the factor analyses pointed us towards the concept of a self-others dichotomy within each of the four domain scales, and with this in mind a further refinement of the measure has been undertaken.

There were two other sources of information which influenced our thinking about the constructs and the reworking of the questionnaire. The first source was a further item analysis of the scales using the Rating Response Model (Andrich, 1978), a binomial latent trait model, which in general

supported the traditional item analysis. The second source was the data obtained from interviews and discussion groups held with students in the case-study schools. Their comments have shown up problems in meaning and relevance with some items and these have been modified; negatively worded items, for example, have been eliminated.

Student comments also led to a re-orientation of the opportunity construct. Students' perceptions of the relevance of their schooling lacked the insight and long-term vision required for the operationalization of the opportunity construct as we had defined it. Of more direct relevance to students was their achievement in school, which enabled them to qualify for future opportunities. Thus the focus in our definition of opportunity is no longer on 'relevance of schooling' but rather on 'recognition of achievement', the experience of which is brought about through the school structure of certification, leading to the fulfilment of the societal expectation of technical competency.

For the new version of the questionnaire some old items were retained, others rewritten, and new items were added, all to fit the self-others format. The components of the four constructs are defined as follows (with descriptors in 'self, others' order):

Status: self-assurance, personal prestige

Identity: self-awareness, interaction with peers

Adventure: involvement in learning, support in learning situation

Opportunity: adequacy in learning situation, fairness of learning situation.

The new questionnaire was administered in July 1980 to the same national sample of students who had completed the first questionnaire the previous year. Results of the data analysis will be available by the end of 1980.

Case-studies are being undertaken in seven Melbourne schools to obtain information about the quality of student life dimensions in the context of particular schools, and to identify any differences that may exist in the perceptions of students at different year levels. The reduced version of the first questionnaire (containing 52 items) was administered to a class group at each of the year levels 9, 10, 11, and 12, and to a group of ex-students.

The Multiple Classification Analysis (MCA) was applied to the data to enable us to examine the relationship between three predictor variables (school, sex, and year level) and the dependent variables (the seven scales). These results were used to identify the schools in which students scored highest and lowest in the four domain scales. Interviews have been held with these students to determine the reasons for their high and low scores. An adapted version of the questionnaire will be given to the teachers in these schools to see how their perceptions of the quality of student life compares with the students' own perceptions. The information thus obtained about between school and within school differences in the quality of school life will give an added dimension to the national survey data.

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YOUTH UNEMPLOYMENT: THE SOCIAL AND PSYCHOLOGICAL CONSEQUENCES

Jeff Clancy

The Australian Council for Educational Research

Introduction

Many teenagers now experience significant amounts of unemployment in their early occupational career. The teenage unemployment rate varies between 16 and 22 per cent depending on the time of year (it is highest between November and February as school leavers enter the labour market) and the average duration of unemployment for people in the age group now exceeds six months (ABS, 1980). The effects of such long term unemployment on adults are clearly documented (Davy, 1977; Jordan, 1975; Sinfield, 1968; Hill, 1977 and 1978; see also Windshuttle, 1979); its effects on teenagers are largely unknown. We also note, with Norris (1978), that the long-term unemployed are only part of the unemployment problem. Many people are unemployed for only short periods between jobs but some of these are unemployed frequently: there is no evidence as to the social and psychological consequences of this kind of unemployment. Given the large numbers of Australian youth who are now affected by unemployment there is a clear need for an analysis of its social and psychological consequences.

A Theoretical Perspective

To a large extent, research into the effects of unemployment has been descriptive and little attempt has been made to interpret findings in terms of a coherent theoretical framework. There are isolated exceptions: Tiggleman (1979) has used Seligman's theory of Learned Helplessness in her study of unemployment among teenagers in Adelaide; Hill (1977, 1978) also attempts to explain his findings in theoretical terms, arguing that

> It seems as if those most likely to become unemployed are those with the weakest psychological grip on their employment (1978:120)

and that the effects of unemployment can be explained in terms of a declining self esteem and the loss of an occupational identity. These approaches use what might be called a 'deficit' model in which unemployment is seen to result from weaknesses inherent in the individual, either from a predisposition to learned helplessness or from a weak psychological grip on employment. While there are strengths in these perspectives, particularly in the Seligman perspective, we reject both here in favour of a perspective which takes greater account of the role of social structural and cultural factors in determining liability to and the effects of unemployment.

Unemployment and the Social Structure

In 'Social Structure and Anomie' (SS&A) Merton (1968:185-247) proposes as analytical distinction between 'culturally defined goals' and 'socially approved and regulated means'. The former are the

> goals, purposes and interests held out as legitimate objectives for all or for diversely located members of society ... the 'things worth striving for..'

'Means' are the socially structured avenues for the legitimate (and illegitimate) pursuit for such objectives, i.e. the regulatory pattern of norms which govern behaviour. Stinchcombe's (1975) reformulation of means and goals as 'socially patterned alternatives' and 'structurally induced motivations' respectively, provides a subtle shift of emphasis away from the social structure towards the individual actor, a shift that makes clearer Merton's notion that the core social process is choosing between socially structured alternatives.

The distinction between means and goals rests on the proposition that they vary independently of each other. Thus available means do not lead, necessarily, to valued goals. Merton argued that disjunctions between the two are an inherent part of the social system and from this deduces his Typology of Individual Adaptation to Means and Goals -

Conforming - accept means, accept goals

Innovating - reject means, accept goals

Ritualising - accept means, reject goals

Retreating - reject means, reject goals

Rebelling - reject means, reject goals and attempt to define new means to new goals

The viability of a social system depends on having most of its members conforming to defined goals and prescribed means; non-conforming adaptions are not encouraged and have important consequences for the individual. Using illegitimate means to gain valued goals (one form of innovating) may involve illegal behaviour (e.g. 'white-collar' crime). Rejecting social and cultural institutions either positively (rebelling) or negatively (retreating) can incur approbation in public ritual and ceremonial life (e.g. of 'hippies' and communes on the one hand and of drug addicts and derelicts on the other).

In SS&A Merton argues that some goals (such as economic success) are held universally whereas access to appropriate means are differentiated with respect to the social structure. This thesis suggests that there is an inherent 'strain' towards deviance built in to the social system. This aspect of his theory has generated considerable research in the area of delinquency (see Clinard, 1964) although it has now been largely eclipsed by symbolic interaction - labelling perspectives (Cole, 1975).

We are arguing here that the SS&A thesis can be applied to a study of the effects of unemployment. In this context unemployment consistutes a disjunction between valued goals which are contingent on employment and available means. These goals may be economic security, social status, the opportunity to practice a trade or profession or material success while the means consist of employment, perhaps in a specific occupation. Using Merton's typology we can suggest a number of adaptions to this kind of disjunction -

- becoming chronically (hard-core) unemployed (retreating)
- becoming self employed (innovating)
- developing an 'alternative' lifestyle (rebelling)
- lowering job expectations and working in dull, dead end jobs (ritualising)

Thus we argue that the problem of unemployment and its effects can be analysed in social structural terms.

There are several advantages and some liabilities in adopting this position. Among the advantages the most important is that this perspective widens the focus of the analysis to include those who withdraw from the workforce or who change their occupational career/pattern as a result of unemployment as well as those who are most obviously suffering its effects; i.e. the long term unemployed. It also enables us to explain unemployment in terms that implicate the social structure (i.e. in terms of relative access to the opportunity structure) rather than use explanations which focus on the personal characteristics of the unemployed. (e.g. Tiggleman, 1979; Hill, 1977). Thus the concentration of unemployment among minorities and the lower occupational strata of Australian society (CEIT, 1979, 1:626-636) can be seen as a reflection of relative inequalities in the social system.

The major liabilities in this perspective are inherent in the Mertonian model. The most important of these concerns the mechanisms that underly the process of adaptation: i.e. how do they come about? In the following section we propose a solution to this which employs Rodman's (1963) theory of Value Stretch.

Adapting to Unemployment

Here we consider one kind of adaptation - retreating - which may result from unemployment. Merton writes that from the standpoint of its sources in the social structure,

> this mode of adaptation is most likely to occur when both the culture goals and the institutional practices have been thoroughly assimilated by the individual and imbued with affect and high value, but accessible institutional avenues are not productive of success. There results a twofold conflict: the interiorized moral obligation for adopting institutional means conflicts with pressures to resort to illicit means (which may attain the goal) and the individual is shut off from means which are both legitimate and effective.
>
> It is thus an expedient which arises from continued failure to near the goal by legitimate measures and from an inability to use the illegitimate route because of internalized prohibitions, this process occurring while the supreme value of the success goal has not yet been renounced. (1968, p.207)

In his view retreatism is characterized by the social outcast, the hobo, addict or down-and-outer - by social isolation, fatalism and passivity. These attributes also characterize the long-term unemployed (Davy, 1977). Note that the long term unemployed also retain a commitment to employment (see, for example, Kaplan and Tausky, 1974).

Clearly the process of adaptation must involve changes in the way an individual relates to his/her internalized value system. The dynamic involved concerns the way in which expectations change in the face of new realities and we propose that it may be possible to follow this process using Rodman's(1963) 'Lower Class Value Stretch Hypothesis'.

The 'Lower Class Value Stretch'

Merton argues that cultural goals and institutionalized means vary independently in the social structure; goals such as material success can be widely held while access to appropriate means may vary, particularly with respect to social class; the lower the social class, the less access to legitimate means. There has been no dispute about differential access to means, but the notion that particular values are held equally throughout society has been criticised. Hyman (1953) argues that the degree to which values are held also varies directly with social class. In response to this, Rodman (1963) put forward the notion of the 'lower class value stretch'. This position argues that values can be considered as a range, not as a fixed single point. The range is bounded by an ideal level (preference) and a minimum level (tolerance): an individual's expectations of which he might achieve with respect to a value would normally lie between the two (see Figure 1).

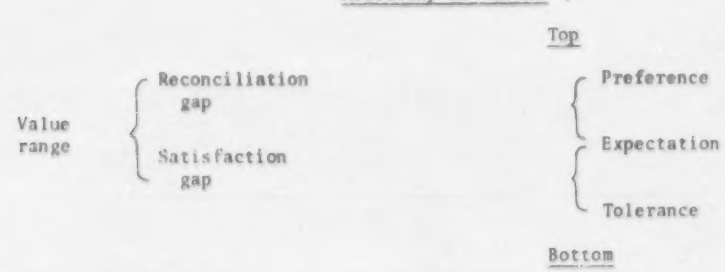

Figure 1 Components of Values (from Della Fave, 1979)

Rodman argues that, as Merton suggested, success values are uniformly distributed through all levels of society regardless of class, and that the observed class differentiation was largely a function of variation in stretch, i.e. the lower the social class, the wider the range and the lower the tolerance and the expectation. The available evidence is not clear on this point, although it does seem that value stretch varies inversely with SES (Della Fave, 1978).

Means/Goals Adaptation and Value Stretch

Rodman's hypothesis provides us with the basis for analyzing the changes in an individual's relationship with his value system as a result of prolonged unemployment. The available research makes it clear that reactions to long term unemployment tend to form a process (Davy, 1977), there are several phases:

Shock This varies with occupational history and is more severe when unemployment is unexpected, particularly when there is an expectation of continuous, stable employment.

Optimism During this phase there is a denial that anything important has happened, that one is 'between jobs' and not really unemployed. If possible an individual will use savings, etc. during this phase rather than register for unemployment benefits. Faith in abilities is maintained and work is sought that is at least commensurate with former occupational level.

Pessimism, Anxiety, Distress In the face of repeated failure to regain employment there is increasing anxiety and uncertainty. Financial strains may now force a person to seek assistance but in this phase the psychological problems are -

> more crippling than the economic situation. Outwardly the unemployed appear to undergo a personality change with the most common features being increased animosity, irritability, bitterness, nervousness, prejudices and weakened health.
>
> With the breaking down of morale they tend to deliberately withdraw and avoid contact with others (Davy, 1977:10)

Fatalism The final stage in the process is marked by a resignation to the idea of being unemployed and a fatalistic approach to the prospect of regaining work. With this acceptance comes a slight improvement in psychological well-being but this does not approach the pre-unemployment level.

This process is summarized in Figure 2.

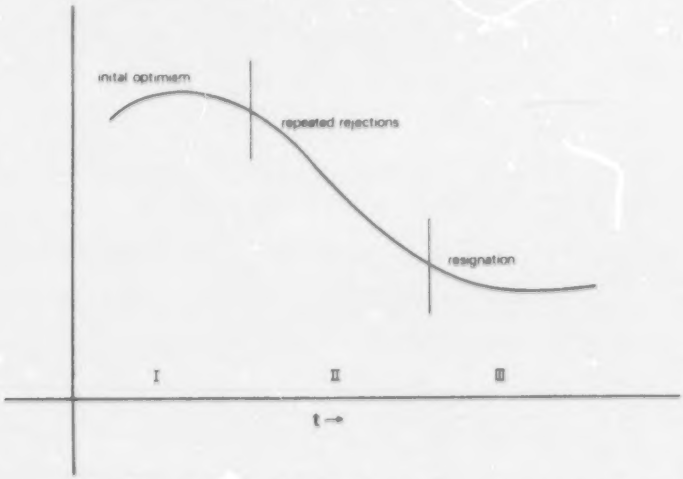

Figure 2 The Unemployment Curve (adapted from Davy, (1978))

If this process is, in fact, one of transition from a conforming to a retreatist adaptation, we could also argue that it is one of diminishing expectations - i.e. the progressive realization that valued goals cannot be attained even in small measure. Hence the unemployment process could be seen in terms of changes in the individual's value stretch (see Figure 3).

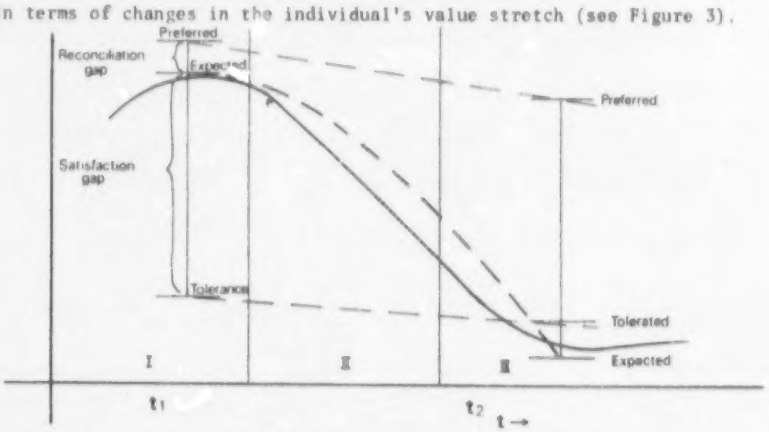

Figure 3 Variations in Value Stretch with Unemployment

In this scheme an individual in Phase I experiences no major shifts in his value stretch. In Phase II, however, failure to regain employment at the previous level or at a lower level (as the person might start lowering his sights) involves a decline in expectations related to work goals and, perhaps, some decline in levels of preference and tolerance. The latter may be relatively inelastic as compared to the level of expectation and in Phase III this may fall below the level of tolerance. Thus the person is faced with the only available employment (if any) as being below his tolerance level and hence unemployment is a better (or the only) alternative: this is the retreatist position.

Similar models can be used to explain the process underlying other non-conforming adaptations. Since choice of adaptation reflects commitment to defined goals and institutionalized means we may argue that this commitment is also reflected in the 'flexibility' of the value stretch; less commitment, less 'flex'. Innovations may tolerate only limited changes in their reconciliation/satisfaction gaps before seeking other means to their goals; Ritualists, in the context of unemployment will compromise their levels of tolerance to accommodate employment in jobs which offer no hope of achieving their work related goals; Rebels, like retreatists, may only drop their levels of tolerance so far but, since they are less committed to convential means and goals, are able to withdraw from the disjunction (and, perhaps, the workforce) in order to seek a new value system.

Current Research

At the time of writing we have a study in the field which incorporates the Merton-Rodman model in examining the psychosocial effects of unemployment. The study is part of a major research program at the ACER which follows the progress of the 6200 teenagers who comprised the 14 year old sample of the 1975 Australian Studies of School Performance as they move through the transition from school to work (Williams et al., 1980). Using data already collected from members of the sample we have selected a subsample of 200 19-year-olds for a detailed study of the effects of unemployment using both structured and in-depth interviews.

We have operationalized the Merton-Rodman model in a series of questions concerning the

respondents work values - in particular attitudes to income, prospects of promotion, economic security, interest in the job, opportunities to develop skills and relationships with people at work. We have also included multi-item indicators of self esteem, locus of control, job anxiety and quality of life. The study is intended to provide detailed information on the extent to which unemployment can constitute a long term social or psychological liability for youth. Results from this study will be available by November this year.

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